Adult Basic Education

in British Columbia's Public Post-Secondary Institutions

An Articulation Handbook
2003-2004 Edition

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INTRODUCTION

This 2003-04 edition is the seventh in whose production I have been involved. It is also my last as I retire from government service in the summer of 2003. I was involved in the very early stages of the ABE Articulation process in BC and have been privileged to work with the ABE Articulation Committees since my entry into government service in late 1994.

This is the eighteenth edition of BC's Adult Basic Education (ABE) Articulation Handbook, and the first to be available only on the web. Limited resources mean the Handbook can no longer be made available in print. The intent is to continue updating the Handbook on an annual basis, ready for the start of the academic year in September. I would like to acknowledge the work of Sherry Bertrand of the Ministry of Advanced Education who took the previous desk-topped version and painstakingly translated it into a Word format for ease of updating. Co-op students Daphne Fu and Alicia Coughlin have assisted in the updating processes

Articulation is a dynamic process and thus will never be completed. The committees meet annually to discuss and agree upon changes and their findings are recorded in this document. The process brings order to the Adult Basic Education program area as offered by the post-secondary system and permits the orderly transfer of course work and credits between participating institutions. The articulation process facilitates dialogue and sharing among professionals and it has effectively raised the status of this program area. It is believed and hoped, however, that the biggest beneficiaries are our students.

In this edition, there is a newly articulated provincial level calculus course. Institutions are sill articulating to the new Advanced Business /Technical Mathematics, and this process should be completed by the spring of 2004.

Articulation has been supported by development of curriculum resources in the various discipline areas. In 2003-04, many articulated ABE courses are being offered online through the province's e-merge initiative. For more information, go to:

http://www.bccampus.ca/courses_abe.asp

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HISTORY OF ABE ARTICULATION

ABE articulation in British Columbia began in 1983. After much deliberation and consultation, the ABE Articulation Development Committee produced a provincial framework and common terminology as a foundation to the process by early 1985. In May, 1985, the ABE Articulation Steering Committee was established to oversee the implementation and on-going process of articulation across the post-secondary system. The Steering Committee set up working committees in each of the major discipline areas, with members from all 15 colleges and the Open Learning Agency. The discipline working committees developed generic outlines and a grid of equivalencies by subject and course for the 16 participating institutions.

In 1986, the then Ministry of Advanced Education and Job Training validated the process by producing the ABE Provincial Diploma to be awarded to any student completing the requirements for secondary school graduation as laid out by the ABE framework. The diploma was signed by the Minister and the college President so that the student's accomplishment and the program he/she participated in was officially recognized.

In 1987, the ABE Framework and Diploma were presented to the provincial universities and British Columbia Institute of Technology. Eventually, all of these institutions recognized the Diploma as an official credential for entry into university studies.

In 1991, the Steering Committee implemented a review of the whole ABE Articulation process. The review culminated in a report presented to the Steering Committee in June, 1992. The 1993 Articulation Handbook included a revised statement on the purpose of articulation.

In 1995, a Ministry of Education/Ministry of Skills, Training and Labour Joint Committee on Adult Basic Education made recommendations which included, among others, a common adult graduation credential and an articulation process between school district adult programs and the public post-secondary institutions. Work on the recommendations was put on hold until the college tuition-free ABE announcement of May 1998. At that time, the ABE Transitions Project was set up between the Ministry of Education and the Ministry of Advanced Education, Training and Technology. The overall goal of the project was to work towards a coordinated ABE system for British Columbia by developing a more integrated, learner-centred approach to ABE programming. Two of the specific objectives of the project were the implementation of a common credential for adults and improved articulation of courses.

In May 1999, the Ministers announced the British Columbia Adult Graduation Diploma (BCAGD) – "The Adult Dogwood" – which replaces the old Adult Dogwood and the ABE Provincial Diploma. In May 2000, amendments were made to the *College and Institute Act*, the *Institute of Technology Act*, and the *Open Learning Agency Act*, to recognize this new joint credential. Amendments were made to the *School Act* and the *Independent School Act* to recognize the credential as well.

THE ABE ARTICULATION PROCESS

The Purpose of Articulation

The purpose of ABE articulation is to provide the development and delivery of high quality education and to facilitate the transfer of adult learners in publicly-funded colleges, university colleges, universities, and institutes in British Columbia.

As of September 1999, the common adult credential (the BCAGD – "The Adult Dogwood") was implemented. The purpose of articulation includes liaison with the school system's ABE programs to facilitate transfer of students back and forth between school district and college ABE programs.

NOTE: The BC Council on Admissions and Transfer (BCCAT) works to further the aim of transitions of adult learners.

For further information on the work and publications of BCCAT, visit their website: http://www.bccat.bc.ca

The Goals of ABE Articulation

The goals of ABE articulation are:

1. to facilitate the transfer of students from one educational institution to another;
2. to facilitate entry of students into further education programs;
3. to lend credibility to the ABE Certificates/Diplomas for students seeking employment or further education;
4. to provide a common terminology throughout the province for levels of achievement;
5. to provide for exchange of information;
6. to set and maintain learning outcomes which respect the autonomy of colleges and institutes to create equivalent course content;
7. to set course requirements for diplomas and certificates;
8. to assist, through working committees, in the development of guidelines for the content of courses identified for different levels of certification;
9. to provide a forum for the discussion of ABE issues;
10. to provide a common voice when addressing external bodies;
11. to encourage development and exchange of curriculum materials.

Steering Committee Business

I. Representatives to the ABE Steering Committee

Appointment/Membership:

1. The ABE Steering Committee Chairperson requests a representative and an alternate from each institution through the Chief Executive Officer of the institution.
2. A formal appointment is made by the institution and recorded by the Steering Committee Chairperson.
3. The desirable attributes in a representative should include:
   - knowledge of field and programs in ABE
   - knowledge about the institution's development of ABE
   - commitment to the articulation process.
4. Appointment is for a two year term that is renewable.
5. A representative carries a single, institutional vote.

Role of a Representative:

As the prime contact person for ABE articulation within the college, between colleges and for other related groups, committees or agencies in the field which may be affected by articulation, the representative:

1. attends Steering Committee meetings;
2. brings institution's concerns, plans and continuing progress in articulation work to the Steering Committee;
3. encourages and facilitates institutional participation in articulation working committees;
4. facilitates articulation work in the college by:
   - communicating with all parts and persons in ABE or relating to ABE,
   - promoting the rationalization of ABE in the light of continuing articulation, and
   - assisting in the update of college brochures, services, etc. regarding ABE articulation.
5. maintains contact with the college's member of BCCAT;
6. provides regular reports to his/her college on articulation activity;
7. prepares and submits an annual report to the Steering Committee on changes, progress etc. in his/her institution that have occurred because of ABE articulation;
8. advises his/her institute's Administration in matters relating to articulation.

II. Chairperson of the Steering Committee

Role of the Chairperson:

The Chairperson of the ABE Steering Committee:

1. prepares the agendas for meetings;
2. sends out a notice of a meeting and its agenda well in advance of each meeting;
3. orients new Working Committee Chairs;
4. submits recommendations and concerns with respect to the articulation process to the BCCAT;
5. chairs meetings of the Steering Committee;
6. keeps informed of all articulation developments in relation to Working Committee developments, local college developments, liaison with receiving institutions;
7. represents the ABE Articulation process when needed and as appropriate;
8. confers with Working Chairpersons on agendas for all meetings;
9. attends as many Working Committee meetings as possible as a non-voting member;
10. attends meetings of the Deans and Directors of Developmental Education;
11. deals with problems and inquiries regarding articulation that arise in the field;
12. liaises with the Ministry on information and problems related to articulation;
13. keeps the ABE articulation policy manual up to date.

Working Committee Business: Terms of Reference

I. Tasks of a Working Committee

A subject Working Committee:

1. reviews college course outlines at the respective levels;
2. comes to a consensus on learning outcomes derived from existing courses at each level of the framework;
3. if appropriate, reviews related curriculum which may impact upon articulation, i.e. Ministry of Education;
4. articulates college courses with the described learning outcomes and produces a provincial course transfer guide;

5. makes recommendations through the chairperson to the Steering Committee about such things as curriculum development, course development;
6. understands that course articulation (Advanced & Provincial Levels) with the universities and institutes is ultimately the responsibility of each college;
7. understands that the process of articulation is primarily one of the exchange of information and setting of learning outcomes, and not one of prescription of length of course, instructional methodology or materials;
8. establishes and maintains links with other articulation committees in the same discipline whenever feasible on issues related to university transfer, career/ technical/vocational areas, K-12, and Continuing Education ABE.

II. Tasks of a Chairperson

A. Procedure

A Working Committee Chairperson:

1. is elected from within the Working Committee;
2. serves a two year (renewable) term;
3. becomes a member of the Steering Committee and the Executive of the Steering Committee;
4. calls annual meetings in the Lower Mainland at least two months prior to the annual Steering Committee meeting;
5. discusses a proposed agenda with the Steering Committee chairperson prior to mail-out;
6. sends a copy of an agenda one month in advance of the meeting to the Working Committee members, the Steering Committees, the Ministry, and to all College principals;
7. encourages every college and institution to send or designate a representative who will act as a spokesperson for the institution;
8. writes an annual report which includes a goal statement, a list of generic topics, a course transfer guide, and the recommendations of the Working Committee to the Steering Committee that may include any curriculum proposals;
9. brings the annual report for distribution and presentation to the annual meeting of the ABE Steering Committee;
10. reports in person to the Steering Committee;
11. provides updated material to the Ministry for the Articulation Handbook (transfer guide, committee lists, course changes, etc.).

B. Responsibilities

A Working Committee Chairperson:

1. represents an institution;
2. orients new members of the Working Committee;
3. notifies Steering Committee members when colleges are not represented on Working Committees;
4. ensures there is a recorder for the Working Committee to summarize the results of the meetings, including items for action;
5. seeks the advice of the System Liaison Person, BCCAT, or the Ministry as and when appropriate, and invites such non-voting representatives to a meeting when necessary;
6. keeps updated course outlines at all levels for each college;
7. ensures the Working Committee stays on task.

List of Working Committees

Currently, there are seven working committees. They are:

1. Computer Studies
2. Education and Career Planning
3. English
4. Fundamental Level
5. Mathematics
6. Science
7. Social Science

Articulation Task Checklist

The following checklist is provided to facilitate effective ABE articulation within and between post-secondary education institutions.

1. Within the ABE Division

Within the ABE division or department in the institution, there should be a plan for general information sessions, including:

- regular subject area meetings, particularly after representatives return from Working Committee meetings;
- prompt and efficient distribution of reports from the Working Committee and Steering Committee minutes and reports;
- change of terminology on certificates, transcripts, calendars, application forms, and other documents;
- development of a new ABE brochure to use in orientation meetings internally and externally;
- submission of course, program, or procedural changes to the respective college committees, i.e. Program Advisory Committee, Standards and Admissions Committee, etc.

2. Regarding Students

Provide orientation for:

- ABE students already enrolled in ABE;
- potential ABE students currently enrolled in other programs.

3. Within the Rest of the Institution

Provide information on an on-going basis to:

- Coordinators or heads of other departments;
- Dean or Vice-president of Instruction;
- Counsellors/Advisors;
- Registrar/Admissions;
- Financial Aid Officer.

4. Planning and Tracking for the BCAGD

Appropriate departments of the institution should plan to:

- identify a list of required and elective courses at this level;
- establish a procedure for dealing with electives;

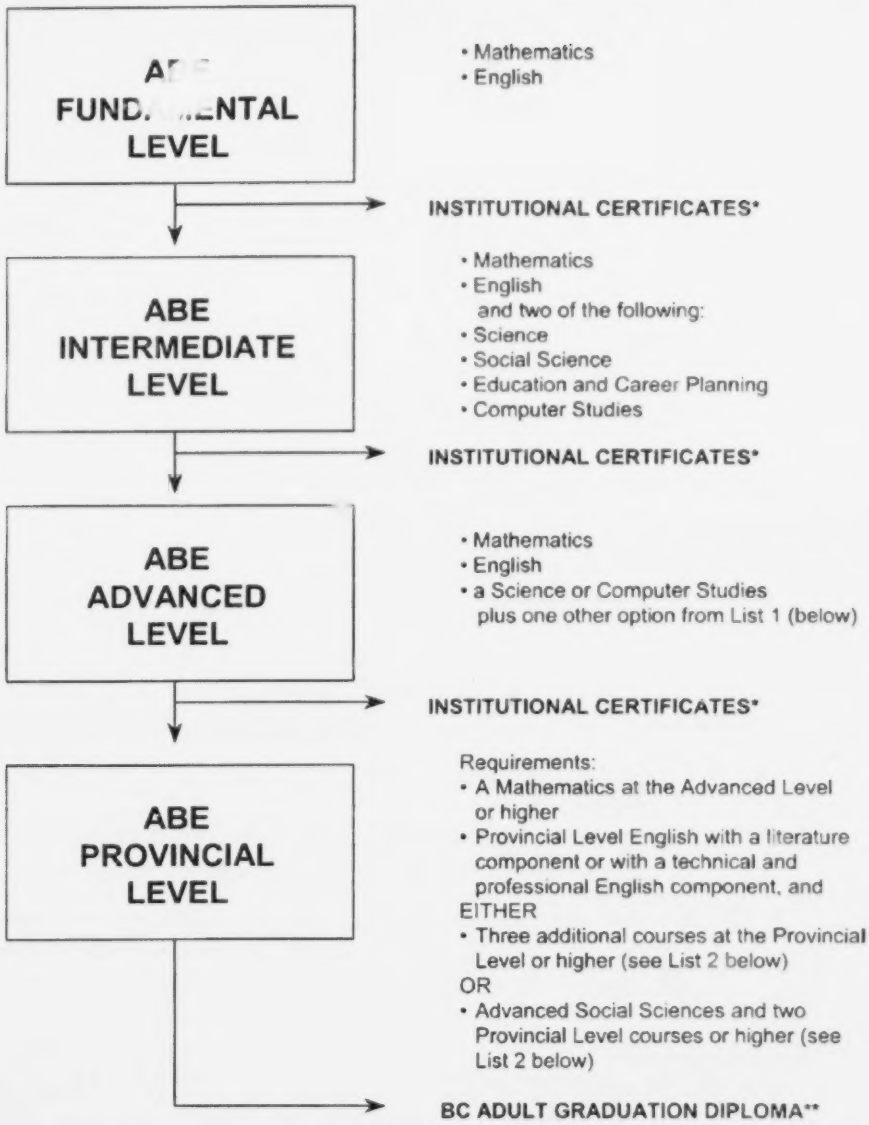
- ensure that students are well-advised or counselled in their course selection;
- establish a procedure for applying for the Diploma (an application form, college transfer credit policy, application of 100 or higher level courses);
- approve student applications (coordinator, committee, registrar);
- establish a procedure for tracking diploma recipients.

5. Community

Provide information on an on-going basis to:

- Ministry of Human Resources offices;
- school districts;
- aboriginal band administration officers;
- other funding agencies.

ABE PROGRAM FRAMEWORK


FUNDAMENTAL LEVEL
• Mathematics
• English
INSTITUTIONAL CERTIFICATES*
ABE INTERMEDIATE LEVEL
• Mathematics
• English
and two of the following:
• Science
• Social Science
• Education and Career Planning
• Computer Studies
INSTITUTIONAL CERTIFICATES*
ABE ADVANCED LEVEL
• Mathematics
• English
• a Science or Computer Studies
plus one other option from List 1 (below)
INSTITUTIONAL CERTIFICATES*
ABE PROVINCIAL LEVEL
Requirements:
• A Mathematics at the Advanced Level or higher
• Provincial Level English with a literature component or with a technical and professional English component, and
EITHER
• Three additional courses at the Provincial Level or higher (see List 2 below)
OR
• Advanced Social Sciences and two Provincial Level courses or higher (see List 2 below)
BC ADULT GRADUATION DIPLOMA**

List 1. Options may be chosen from social sciences, another science, trades training at the occupational level, a language, accounting, education and career planning, etc., at the advanced level or higher.
List 2: Courses may be chosen from academic subjects at the Provincial level or higher in the areas of science, languages, humanities, social sciences, mathematics, and computer science or studies. Courses for credit may also be chosen from other subjects at the Provincial level or higher such as education and career planning, trades training at the specialty level, business administration, visual, graphic and performing arts. (Specific lists of options will be available at individual colleges & institutions.)
*** Each certificate and diploma is independent and not prerequisite for another.**
**** Effective Sept. 1, 2000, the ABE Provincial Diploma was no longer granted. The new BC Adult Graduation Diploma ("The Adult Dogwood") is effective Sept. 1, 1999. See the next pages for more information.**

THE BC ADULT GRADUATION DIPLOMA: "The Adult Dogwood"

This common credential was introduced in September 1999. To be eligible to graduate on this program, adult students (19 years of age or over) must earn at least 20 credits in the secondary system or five courses in the post-secondary system. Courses and credits can be counted from either or both of the following areas:

BC SCHOOL SYSTEM SECONDARY - Qualifying Courses			**COLLEGE ABE PROGRAM - Qualifying Courses**
A Language Arts 12	4 credits	**OR**	A Provincial Level English or higher
A Mathematics 11 or 12	4 credits	**OR**	An Advanced or Provincial Level or higher Mathematics*
Three Grade 12 Ministry-authorized Courses (4 credits each)	12 credits	**OR**	Three additional courses at the Provincial Level or higher
or			or
Social Studies 11 (4 credits) and two Grade 12 Ministry-authorized Courses (4 credits each)	12 credits		Advanced Social Sciences and two Provincial level courses or higher
Total:	**20 credits**		**Total: 5 courses**

* A student is able to take and obtain credit towards the BCAGD for both Advanced level and Provincial level (or higher) Mathematics. In the latter case, Mathematics would be one of the electives.

Notes:

1. To be eligible for the BC Adult Graduation Diploma, a person must be 19 years or older. An eighteen year-old who has been out of school for at least a year may be admitted to an adult program with approval from the enrolling institution.
2. Three courses must be completed after enrolling in an adult program. Prior Learning Assessment may be used to meet any of the requirements for the BC Adult Graduation Diploma. Prior Learning Assessment involves a variety of techniques including equivalency reviews, challenge processes, in-depth interviews, etc.
3. In the secondary school system Provincial Exams are optional for students on an adult program. If the student chooses not to write a provincial exam, the grade will be reported with a "Q" code. It should be noted that some post-secondary institutions may not accept examinable courses for admission purposes unless the secondary system provincial exam has been written.
4. Any 4-credit course that is authorized by the Ministry of Education, or the Ministry of Advanced Education as requirements for graduation may be used towards the BCAGD.
5. For Ministry of Education information see the following section: "BC Adult Graduation Diploma: Questions and Answers."
6. Accounting 11 or a college course equivalent to Accounting 11 can be used for the mathematics 11 credit for the BCAGD.

The BC Adult Graduation Diploma: Questions and Answers

What is the name of the new adult credential?

The official name of the new credential is the British Columbia Adult Graduation Diploma, but it is also known informally as the "Adult Dogwood."

What does the BC Adult Graduation Diploma replace?

The BC Adult Graduation Diploma replaces the former Adult Dogwood granted through the Ministry of Education (MEd) and the former ABE Provincial Diploma granted through the Ministry of Advanced Education (AVED).

What about the regular Dogwood Diploma?

The regular Dogwood Diploma is not affected by these changes. Adults may choose to do the regular Dogwood Diploma through the MEd. All articulated post-secondary ABE courses can be used for credit towards either the regular or Adult Dogwood.

What about the GED?

The GED (General Educational Development) certificate is not affected by these changes. The GED certificate is not the same as a dogwood diploma.

When was the new BC Adult Graduation Diploma implemented?

The new diploma was implemented as of September 1, 1999.

However, there was a transition period between September 1, 1999 and August 31, 2000 in which the ABE Provincial Diploma was also granted through the post-secondary institutions and AVED.

As of September 1, 2000 the ABE Provincial Diploma was no longer granted.

Who will issue the BC Adult Graduation Diploma?

Post-secondary institutions will request the diplomas from AVED (at 250-356-8382) and issue them from the registrar's office. The new diploma is a joint AVED/MEd document signed by both ministers. Students may take their post-secondary course(s) back to the school district and apply for their diploma through the school district and MEd.

Who will issue the transcripts for the diploma?

The institution issuing the diploma identifies which courses have been used to qualify for the diploma, both internal and transfer courses. Students combining courses from the two systems for the diploma will need to include all relevant transcripts in situations where they need to verify their courses and grades.

Does a student have to take at least 3 of the courses used towards the Adult Dogwood as an adult?

Yes, or a student may use Prior Learning Assessment (where available) as an adult to get credit for at least 3 courses used towards the diploma.

What if a student is only missing one or two courses from their high school graduation?

This student could take the missing course(s) at the college or school district and take them back to the high school towards the regular Dogwood Diploma.

Does a student have to take a minimum number of courses used towards the Adult Dogwood from the institution granting the Adult Dogwood?

Yes, at least one course from the institution granting the diploma. The other eligible courses may be brought from another institution or institutions.

Can a student use courses taken a long time ago for credit towards the Adult Dogwood?

Yes, as long as s/he has completed three courses as an adult and they were Ministry-authorized courses at the time.

Will college ABE students be able to write MEd provincial exams?

No, not through a college.

If a student wishes to write a provincial exam the student must register for the provincially examinable course at a school district.

What courses are eligible? Can Communications 12 be used as the Language Arts 12? Can Accounting 11 be used for the Mathematics 11?

Any course that is Ministry-authorized by either MEd (4 credits) or AVED (see the handbook information below) as requirements for graduation may be used towards the diploma.

Yes, Communications 12 and Accounting 11 are eligible for Language Arts 12 and Mathematics 11 respectively.

Can Career Programs (CP) designated courses be counted for credit towards the BCAGD?

The only Career Prep course allowed for graduation credit for the BCAGD is Work Experience 12 (CPWE12).

Where can I find out more information about course requirements and graduation requirements?

Ministry of Advanced Education (AVED):

This Articulation Handbook is the AVED authorized guide to ABE course information and graduation requirements. Eligible courses include any advanced Mathematics or higher, any provincial English or higher, and any provincial level courses or higher. Higher than provincial level courses may or may not be accepted for university transfer if they have also been used towards the BCAGD. Students using these need to check with the receiving department/institution.

Ministry of Education:

The main MEd website for the Adult Graduation Program is http://www.bced.gov.bc.ca/adult_graduation/

The graduation requirements are also included in the *Handbook of Procedures* (http://www.bced.gov.bc.ca/exams/handbook/chapter3/adult.htm).
This handbook also includes information on course equivalencies (http://www.bced.gov.bc.ca/exams/handbook/chapter2/equivalency.htm).

All four credit grade 12 courses that are listed in Chapter 1 (ministry-authorized) and Chapter 2 (external courses) of *Course Information* book, plus Social Studies 11 can meet the BCAGD requirements. See: http://www.bced.gov.bc.ca/graduation/courseinfo/

Two credit courses cannot be used towards graduation in the adult program. The exception is CAPP 11 and 12, which, for adults only on the adult program, can now be combined as CAPPA 12 and be used as a four credit course towards graduation.

The books mentioned above can be ordered from the Data Management Branch of MEd by fax at 250-952-6579 or downloaded from the Internet.

The tables below indicate which ABE post-secondary courses have been deemed equivalent (80% match of learning outcomes) to the MEd courses and which ones are external (MEd authorized for credit towards a graduation diploma).

ABE Post-Secondary Courses Authorized as Equivalent to Ministry of Education Courses

MEd Course Code	ABE Post-Secondary Course Title	MEd Equivalent Course	Credits	Meets Foundation Studies
MATHEMATICS				
	ABE Advanced Business/ Technical Mathematics	*	4	Mathematics
	ABE Advanced Developmental Mathematics	*	4	Mathematics
MA 11	ABE Advanced Algebraic Mathematics	Principles of Mathematics 11	4	Mathematics
QMA 12	ABE Provincial Mathematics	Principles of Mathematics 12	4	Mathematics
SCIENCE				
BI 11	ABE Advanced Biology	Biology 11	4	Science
QBI 12	ABE Provincial Biology	Biology 12	4	Science
CH 11	ABE Advanced Chemistry	Chemistry 11	4	Science
QCH 12	ABE Provincial Chemistry	Chemistry 12	4	Science
EDUCATION AND CAREER PLANNING				
CAPPB 11	ABE Advanced Education and Career Planning	Career and Personal Planning B 11	4	
CAPP 11 CAPP 12	ABE Provincial Education and Career Planning	Career and Personal Planning 11/12	2 2	Career and Personal Planning 11 and 12

* As of September 2002, Introductory Mathematics 11 no longer exists. Also, Essentials of Math 11 replaced the curriculum for the former Mathematics 11A. Because of recent changes in Learning Outcomes for the ABE Advanced Business/Technical Mathematics and ABE Advanced Algebraic Mathematics, as well as changes in the MEd Grade 11 Mathematics courses, equivalence (80% match) cannot be stated until courses from both systems are compared. Whether "equivalent" or "external," the ABE Advanced Mathematics and Grade 11 Mathematics courses can all be used for the math credit in the BCAGD.

N.B.: MEd course equivalency policies are outlined at the beginning of chapter 2 of the Handbook of Procedures. http://www.bced.gov.bc.ca/exams/handbook/

External ABE Post-Secondary Courses Authorized for Ministry of Education Credit

MEd Course Code	ABE Post-Secondary Course Title	Meets Foundation Studies	Credits	Credit Restrictions by Code
UABEA 11	ABE Advanced Accounting (11)	Applied Skills	4	
UABEC 11	ABE Advanced Computer Studies (11)	Applied Skills	4	
UABEC 12	ABE Provincial Computer Studies (12)	Applied Skills	4	
UABEE 11	ABE Advanced English (11)	Language Arts 11	4	EN 11
UABEE 12	ABE Provincial English (12)	Language Arts 12	4	EN 12
UABEP 11	ABE Advanced Physics (11)	Science	4	PH 11
UABEP 12	ABE Provincial Physics (12)	Science	4	PH 12
UABEG 11	ABE Advanced General and Applied Science (11)	Science	4	
UABES 11	ABE Advanced Social Studies (11)	Social Studies	4	SS 11
UABES 12	ABE Provincial Social Studies (12)		4	

N.B.: A Ministry of Education (MEd) approved External course is an MEd-authorized course. These courses are of equivalent or higher standard to other MEd-authorized senior secondary courses, but the learning outcomes differ. Other MEd approved External course lists can be found in chapter 2 of the Course Information book. http://www.bced.gov.bc.ca/graduation/courseinfo/

RECOGNITION of the BC ADULT GRADUATION DIPLOMA

The British Columbia Adult Graduation Diploma (BCAGD) is recognized by colleges, institutes and universities in the British Columbia post-secondary system. Entries below are taken from recent calendars.

B.C. Institute of Technology
2003-2004 Academic Requirements for Admission

The British Columbia Adult Graduation Diploma is considered to be equivalent to BCIT general prerequisites; that is, graduation from Senior Secondary School. Applicants should check with the Admissions department to ensure courses taken through the BCAGD are acceptable for admission to BCIT. The BCAGD replaces the former Adult Dogwood granted by the Ministry of Education, and the former Adult Basic Education Diploma granted by the Ministry of Advanced Education Training and Technology.

Simon Fraser University
2003-2004 Calendar entry:

BC Adult Graduation Diploma

This credential is available to adults who take courses to complete graduation through a secondary school, adult education centre or a community college. Applicants who have completed the diploma and who are at least 19 years of age may be admitted if they have completed:

- four courses (16 credits) at grade 11 or advanced level to include English, mathematics, social studies or First Nations 12, an experimental or laboratory science
- four courses (16 credits) at the grade 12 or provincial level to include English and three additional subjects selected from: biology, mathematics, chemistry, English literature, languages, statistics, geography, history, physics

All four grade 12 or provincial level subjects must be graded: a minimum average of C+ or 67% is required, based on the Ministry of Education grading scale.

Entry requirements to business administration, computing science, engineering science, kinesiology and the Faculty of Science parallel those for BC secondary school graduates.

University of British Columbia
2003-2004 Calendar entry:

Adult Basic Education (ABE) - British Columbia Adult Graduation Diploma (BCAGD)

The University recognizes the British Columbia Adult Graduation Diploma (BCAGD) for admission to the first year of an undergraduate degree. Applicants who have completed the BCAGD must be at least 19 years of age and meet the following admission requirements:

- Adult Basic Education (ABE) Advanced Level or Grade 11 courses in
  - English,
  - Mathematics (ABE) or Principles of Mathematics 11,
  - a science,
  - one of Social Studies (ABE) or Social Studies 11 or First Nations 12 or language 11
- Four subjects at the ABE Provincial Level or Grade 12 including English and 3 additional subjects chosen from biology, chemistry, physics, Mathematics (ABE) or Principles of Mathematics 12, Computer Science (ABE), geology, geography, history, English literature, languages.

- A minimum average of C+ or 67% based on the 4 ABE Provincial or Grade 12 courses presented which must be graded. Grade 12 course results must include the provincial examination component of the course.

Because of enrolment limitations, the academic standing required for admission to most programs is higher than C+ or 67%. Entrance requirements to specific programs parallel those for BC/Yukon secondary school graduates and applicants should refer to the table "Specific Program Requirements for Applicants from a Secondary School in BC/Yukon."

University of Northern British Columbia
2003-2004 Calendar entry:

British Columbia Adult Graduation Diploma
Applicants must be 19 years of age, have successfully completed the BC Adult Graduation Diploma, and completed four subjects (from the list below) at the provincial or Grade 12 level with an overall average of 65% or better:

- English
- Three additional subjects selected from: Biology, Calculus, Chemistry, Comparative Civilizations, English Literature, Geography, Geology, History, Languages, Law, Mathematics, Physics, Writing

Note: The BC Adult Graduation Diploma curriculum is effective September 2000. Students who have completed an ABE Diploma or Adult Dogwood prior to September 2000 will be evaluated based upon previous UNBC policy regarding each credential.

University of Victoria
2003-2004 Calendar entry:

Applicants with a BC Adult Graduation Diploma (the Adult Dogwood) may apply for admission to the University of Victoria if the following minimum requirements are met:

1. The applicant is at least 19 years of age.
2. Successful completion of English, Mathematics (academic), a laboratory Science, and Social Studies 11 or equivalent at the advanced or grade 11 level. Courses done through the secondary system must each be worth 4 credits.
3. Successful completion of English plus three approved academic subjects at the provincial or grade 12 level. Courses done through the secondary system must each be worth 4 credits, and provincial examinations must be written if offered in the subject taken. All courses presented for admission must be graded. A minimum average of 67% is required for consideration.

All applicants must have the appropriate prerequisites for the program to which they have applied. Admission requirements for the Faculty of Engineering, the Faculty of Science and the Health Information Science program parallel those for BC secondary school graduates.

Trinity Western University
2003-04 Calendar entry:

Applicants who have completed the Adult Basic Education diploma should be at least 19 years old and have completed the diploma with four provincial level academic courses, one of which must be English. A minimum average of 67 per cent is required in these courses.

TRANSFER GUIDES

Computer Studies Transfer Guide

INSTITUTION:	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College				
Capilano College	BCMP 021	BCMP 031	BCMP 041	BCMP 052 (prog) BCMP 051 (app)
College of New Caledonia	COMP 020	COMP 030	CST 045	
College of the Rockies			COMP 080	COMP 090 (app)
Douglas College				
Kwantlen University College				
Langara College				
Malaspina University-College			COST 047	COST 067 (app)
Nicola Valley Institute of Tech.		COMP 040	COMP 050	
North Island College	CPS 025	BIP 090		
Northern Lights College	CPST 020	CPST 030	CPST 040	CPST 050 (app)
Northwest Community College	CPST 20	CPST 030	CPST 040	
Okanagan University College		COST 070	COST 011	COSC 012 (prog) COST 012 (app)
Open Learning Agency/BCOU**			DTEC 020	DTEC 030 (app)
Selkirk College	CPST 02	CPST 10	CPST 50	CPST 51 (app)
University College of the Cariboo		COMP 040	COMP 050	COMP 060 (prog) COMP 065 (app)
University College of the Fraser Valley	COMP 061	COMP 071	CIS 100	
Vancouver Community College			CST 063 COKB 062	DTPR 083 or DTPR 084 and WDPR 082 or WDPR 093 *
Native Education Centre		CST 041 & 051	CST 061 & 071	CST 081 & 091
Yukon College				

(app) = Applied Computer Studies at the Provincial Level
(prog) = Programming (Computer Science) at the Provincial level.
* To complete the provincial level, the student must take either DTPR 083 or DTPR 084 as well as one of WDPR 082 or WDPR 093.
** BCOU = British Columbia Open University. (The Open Learning Agency is being dismantled. ABE courses fall under the purview of BCOU).

Education & Career Planning Transfer Guide

INSTITUTION:	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College		BEST 040	BEST 040	BEST 040
Capilano College		EDCP 030*	EDCP 040*	
College of New Caledonia			EDCP 045	
College of the Rockies		EDCP 070*	EDCP 080*	EDCP 090*
Douglas College				
Kwantlen University College				
Langara College				
Malaspina University-College		EDCP 030*	EDCP 047*	EDCP 067*
Nicola Valley Institute of Tech.			CRLS 050	CRLS 060
North Island College		CEP 030		
Northern Lights College		EDCP 030	EDCP 040	
Northwest Community College		EDCP 030		
Okanagan University College		EDCP 71, 72, 73, 74 & 75*	EDCP 81, 82, 83, 84 & 85*	
Open Learning Agency/BCOU		EDCP 010*	EDCP 020	EDCP 030*
Tl'azt'en Nation			EDCP 024	
Prince George Native Friendship Centre		PGEC 010	PGEC 020	
Educacentre		APDC 010*	APDC 020*	APDC 030*
Selkirk College	EDCP 02*	EDCP 49*	EDCP 50*	EDCP 51*
University College of the Cariboo		EDCP 040	STSS 050	
University College of the Fraser Valley	EDCP 064	EDCP 074		
Vancouver Community College		EEAW 041 & 051 BEST 041 & 051	EEAW 061 & 071 BEST 061 & 071	EEAW 081 & 091 BEST 081 & 091
Native Education Centre		EDCP 041 & 051		EDCP 081 & 091*
Yukon College				

* Course levels are differentiated by the level of language and the requirements of the assignments. Thus, the Provincial level will require a higher level of language ability and the assignments will be more demanding than the Intermediate level.

English Transfer Guide

INSTITUTION:	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	ABEN 030 ABEN 040*	ABEN 050	ABEN 080	ABEN 080 ENG 082 & ENG 084 or 088
Capilano College	BENG 011 BENG 021*	BENG 031	BENG 040 or BENG 041	BENG 052 (L)
College of New Caledonia	ENG 010 ENG 020*	ENG 030	ENG 045	ENG 050
Prince George Native Friendship Centre			ATEN 045	
College of the Rockies	ENG 060*	ENGL 070	ENGL 080	ENGL 090 (L) or ENGL 091 (T)
Douglas College	DVST 100, DVST 155, DVST 245, DVST 255* or DVST 250* & 260*	DVST 350 & 360 DVST 355	DVST 455	
Kwantlen University College	ABEE 0050/ PSPE 1050 ABEE 0060/PSPE 1060	ABEE 0070/PSPE 1070	ABEE 0081/ PSPE 1081	ABEE 0091/ PSPE 1091 ABEE 0097/PSPE 1097
Malaspina University-College	ENGL 010 ENGL 025*	ENG 037	ENG 047	ENG 067
Nicola Valley Institute of Tech.		ENG 40	ENG 50	ENG 60
North Island College	ENG 010 ENG 022 - Spelling (optional) ENG 027*	ENG 032 & ENG 033 & ENG 034	ENG 052	ENG 060 (L) or ENG 098
Northern Lights College	ENGL 020*	ENGL 030	ENG 040	ENG 050 (L) or ENG 051 (T)
Northwest Community College	ENG 020*	ENG 030 First Nations 030	ENG 040 or ENG 045	ENG 050 (L) or ENG 055 (T)
Okanagan University College	ENG 50 or ENG 51 & 52 ENG 60* or ENG 61 & 62*	ENG 70 or ENG 71 & 72	COMP 011 or ENG 80 or ENG 81 & 82 or ENG 011	ENG 012 (L) or ENG LIT 012 or REAC 062 & WRIT 061 (L)
Open Learning Agency/BCOU	ENGL 002 & ENGL 003*	ENGL 010, ENGL 012	ENGL 024,ENGL 020, ENGL 028	ENGL 030 or ENGL 034
Tl'azt'en Nation		ENGL 014		
Prince George Native Friendship Centre		PGEN 010	PGEN 020	PGEN 030
Selkirk College	LASK 01 & LASK 02* R&SS01 & R&SS02*	ENG 10	ENG 50	ENG 51 (L) or ENG 55 (T)
University of BC				FN ENGL 012
University College of the Cariboo	ENGL 030*	ENGL 040	ENGL 050	ENGL 060 (L)
University College of the Fraser Valley	ENGL 051 ENGL 061*	ENGL 071	ENGL 081	ENGL 091
Vancouver Community College	ENG 031*	ENG 041 & 051	ENG 061 & 071	LIT 083 & 093 Or ENG 098 & 099 (L) or ENG 081 & 091 (L) or TPE 093
Native Education Centre		First Nations ENG 041 & 051	First Nations ENG 061 & 071	ENG 081 & 091 (L) or ENG 083 & 093 (T)
Yukon College		ENG 030	ENG 050	ENG 060 (L)

* = "exit" course for the Fundamental Level L = Literature T = Technical and Professional

Fundamental Level Transfer Guide

INSTITUTION:	COMPUTER STUDIES	EDUCATION & CAREER PLANNING	ENGLISH	MATH
Camosun College			ABEN 030 ABEN 040*	ABMA INTRO ABMA 040*
Capilano College	BCMP 021		BENG 011 BENG 021*	BMATH 011 BMATH 021*
College of New Caledonia	COMP 020		ENG 010 ENG 020*	MATH 015 MATH 020*
College of the Rockies			ENG 060*	MATH 060*
Douglas College			DVST 100, DVST 155, DVST 245, DVST 255* or DVST 250* & 260*	DVST 110 DVST 210*
Kwantlen University College			ABEE 0050/ PSPE 1050 ABEE 0060*/ PSPE 1060*	ABEM 0063*/ PSPM 1063
Malaspina University-College			ENGL 010 ENGL 025*	MATH 010 MATH 020*
North Island College	CPS 025		ENG 010 ENG 022 - Spelling (optional) ENG 027*	MATH 023 MATH 024 MATH 025*
Northern Lights College	CPST 020*		ENGL 020*	MATH 020*
Northwest Community College	CPST 020		ENG 020*	MATH 020 MATH 0201/0202*
Okanagan University College			ENG 50 or ENG 51 & 52 ENG 60* or ENG 61 & 62*	MATH 51 & 52 MATH 61 & 62*
Open Learning Agency/BCOU			ENGL 002 & ENGL 003* or ENGL 009*	MATH 010 (Adv. Fund. Refresher Math)*
Selkirk College	CPST 02*	EDCP 02*	LASK 01 & LASK 02* R&SS01 and R&SS02*	MATH 01 MATH 02*
University College of the Cariboo			ENGL 030*	MATH 030*
University College of the Fraser Valley	COMP 061	EDCP 064	ENGL 051 & ENGL 061*	MATH 051 & MATH 061*
Vancouver Community College			ENG 031*	MATH 031*

* = "exit" course for the Fundamental Level.

Mathematics Transfer Guide

INSTITUTION:	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	ABMA 030 ABMA 040*	ABMA 040 & ABMA 050 (A)	MATH 062 & 063 (A) or ABMA 062 & 063 (A)	MATH 115
Capilano College	BMATH 011 BMATH 021*	BMTH 033 & 034 (A)	BMTH 041 (bus)** or BMTH 043 & 044 (A) or MATH 091 & MATH 096**	BMTH 053 & 054 or MATH 105
College of New Caledonia	MATH 015 MATH 020*	MATH 030 (A) or MATH 035 (bus)	MATH 044 (dev) or MATH 045 (A)	MATH 050 or MATH 100
College of the Rockies	MATH 060*	MATH 070	MATH 080 (A) or MATH 081 (bus)** or MATH 082 (dev) or MATH 083 (tec)**	MATH 090 or MATH 093
Douglas College	DVST 110 DVST 210*	DVST 310 (A)	DVST 410 (dev) or DVST 411(A)	DVST 412
Kwantlen University College	ABEM 0063*/ PSPM 1063	ABEM 0072 (A)/ PSPM 1072	ABEM 0082 (A)/ PSPM 1082 (A)	MATH 1112
Langara College			MATH 1150 (dev)	MATH 1152
Malaspina University-College	MATH 010 MATH 020*	MATH 030	MATH 047 (A) or MATH 040 (bus)** or MATH 044 (tec)** or MATH 041 (dev) or MATH 045 & 046	MATH 067 or MATH 151 & 152
Nicola Valley Institute of Tech.		MATH 040 or MATH 041	MATH 050 (dev) or MATH 051 (A)	
North Island College	MATH 023 MATH 024 MATH 025*	MATH 033 & 034 (A)	MATH 053 (A) or MATH 046 (dev)	MATH 066 & 067
Northern Lights College	MATH 020*	MATH 030 (A) or MATH 031	MATH 040 (A) **or MATH 041 (tec)** or MATH 042 (bus)** or MATH 043 (dev)	MATH 050
Northwest Community College	MATH 0201 & 0202	MATH 0301 & 0302 (A) or MATH 031 (bus) or MATH 032 (tec)	MATH 0401 & 0402 (A) or MATH 045 (dev)	MATH 0501 & 0502
Okanagan University College	MATH 51 & 52 MATH 61 & 62*	MATH 71 & 72 (A) or MATH 71 & 73	MATH 011 (A) or MATH 84 & 85 (A) or ALGE 011 (dev) or MATH 84 & 86 (bus)** or MATH 84 & 87 (tec)** or MATH 110**	MATH 012 or MATH 120
Open Learning Agency/BCOU	MATH 010 (Adv. Fund. Refresher Math)*	MATH 014 (A)	MATH 024 (A)** or MATH 026 (tec)**	MATH 034
Selkirk College	MATH 01 MATH 02*	MATH 10 or MATH 49 (A)	MATH 50 (A) or MATH 23 (bus)**	MATH 110
University College of the Cariboo	MATH 030*	MATH 040	MATH 050 (dev) or MATH 051 (A)	MATH 060 & 061

Mathematics Transfer Guide (Cont'd)

INSTITUTION:	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
University College of the Fraser Valley	MATH 051 MATH 061*	MATH 072 (A)	MATH 084 (dev) or MATH 085 (A)	MATH 094 & 95 or MATH 110
Vancouver Community College	MATH 031*	MATH 050 & 051 (A) or MATH 052 & 053 (bus)	MATH 061 & 071(A) or MATH 062 & 072 (bus)** or MATH 063 & 073 (tec)**	MATH 083 & 093 MATH 096 & 097 (calc)
Native Education Centre		MATH 050 & 051 (A)	MATH 061 & 071(A) or MATH 062 & 072 (bus) or MATH 061 & 071 (dev)	MATH 083 & 093
Yukon College		MATH 030	MATH 050 (A)	MATH 060 MATH 070 (calc)

* = "exit" course for the Fundamental Level.
(A) = Algebra option;
(bus) = business/consumer math;
(tec) = technical math;
(dev) = developmental
(calc) = introduction to calculus

Note: All courses double starred will have to be rearticulated by April 2004 in order to match the learning outcomes for the Advanced Business/Technical Mathematics. If the courses are not rearticulated by that time the courses will be dropped from the grid.

General & Applied Science Transfer Guide

INSTITUTION:	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	ABSCI INTER		
Capilano College	BSCI 032 or BSCI 033 & BSCI 034	BESC 041	
College of New Caledonia	SC 030 or SC 035		
College of the Rockies	SCIE 070		
Douglas College	DVST 370	DVST 470	
Kwantlen University College	ABES 0074 or PSPS 1074		
Langara College			
Malaspina University-College	SC 030	SC 040 or SC 044 or SC 047	
Nicola Valley Institute of Tech.			
North Island College	SCI 031		
Northern Lights College	SCI 030	SCIE 040	
Northwest Community College	SCI 030		
Okanagan University College	SC 70	SC 80 or Science and Tech 011	
Open Learning Agency/BCOU	SCIE 010	EASC 024	
Tl'azt'en Nation		FOSC 020	FOSC 030
Selkirk College	SCIE 10		
University College of the Cariboo	SINC 040	SINC 050	
University College of the Fraser Valley	BIOL 071 and CHEM 071		
Vancouver Community College	SC 051	SC 061 & 071	
Native Education Centre	SC 051	SC 061 & 071	
Yukon College			

Biology Transfer Guide

INSTITUTION:	ADVANCED	Provincial Ecology	PROVINCIAL Human Biology
Camosun College	BIOL 060		BIOL 080
Capilano College	BBIO 041 or BBIO 043 & 044		BBIO 042 or BBIO 053 & 054
College of New Caledonia	BIO 045		BIO 050
College of the Rockies	BIO 080		BIO 090
Douglas College	DVST 472 & 473		
Kwantlen University College	ABEB 0086 or PSPB 1086		ABEB 0096 or PSPB 1096
Langara College			
Malaspina University-College	BIO 047		BIO 067
Nicola Valley Institute of Tech.	BIO 050		
North Island College	BIO 051		BIO 060
Northern Lights College	BIO 040		BIO 050
Northwest Community College	BIOL 040 or BIOL 0401 & 0402		BIOL 050 or BIOL 0501 & 0502
Okanagan University College	BIO 011		BIO 012
Open Learning Agency/BCOU	BISC 023		BISC 030
Selkirk College	BIOL 50		BIOL 51
University College of the Cariboo	BIO 050	BIO 062	BIO 060
University College of the Fraser Valley	BIO 083 BIO 083A		BIO 093
Vancouver Community College	BIO 061 & 071	BIO 094	BIO 083 & 093
Native Education Centre	BIOL 061 & 071		BIOL 083 & 093
Yukon College	BIOL 050		BIOL 060

Chemistry Transfer Guide

INSTITUTION:	ADVANCED	PROVINCIAL
BC Institute of Technology	CHEM 0001	
Camosun College	CHEM 060	CHEM 110
Capilano College	BCHM 041 or BCHM 043 & 044	BCHM 042 or BCHM 053 & 054
College of New Caledonia	CHE 045	CHE 050
College of the Rockies	CHEM 080	CHEM 090
Douglas College		
Kwantlen University College	CHEM 0094	CHEM 1105
Langara College		
Malaspina University-College	CHEM 047	CHEM 067
Nicola Valley Institute of Tech.		
North Island College	CHE 051	CHE 060
Northern Lights College	CHEM 040	CHE 050
Northwest Community College	CHEM 040 or CHEM 0401 & 0402	CHE 050
Okanagan University College	CHE 011	CHE 012
Open Learning Agency/BCOU	CHEM 024	
Selkirk College	CHEM 50	CHEM 51
University College of the Cariboo	CHEM 50	CHEM 60
University College of the Fraser Valley	CHE 083	CHE 093
Vancouver Community College	CHEM 061 & 071	CHEM 083 & 093
Native Education Centre	CHEM 061 & 071	CHEM 083 & 093
Yukon College	CHEM 50	CHEM 60

Physics Transfer Guide

INSTITUTION:	ADVANCED	PROVINCIAL
Camosun College	PHYS 060	
Capilano College	BPHY 041 or BPHY 043 & 044	BPHY 042 or BPHY 053 & 054
College of New Caledonia	PHYS 045	PHYS 050
College of the Rockies	PHYS 080	PHYS 090
Douglas College	DVST 476	
Kwantlen University College	ABEP 0088 or PSPP 1088	PHYS 1100
Langara College		
Malaspina University-College	PHYS 047	PHYS 067
Nicola Valley Institute of Tech.		
North Island College	PHY 050	PHY 060
Northern Lights College	PHYS 040	PHYS 050
Northwest Community College	PHYS 040	PHYS 050
Okanagan University College	PHYS 011	PHYS 012
Open Learning Agency/BCOU	PHYS 024	PHYS 034
Selkirk College	PHYS 050	PHYS 051
University College of the Cariboo	PHYS 050	PHYS 060
University College of the Fraser Valley	PHYS 083	PHYS 093
Vancouver Community College	PHYS 061 & 071	PHYS 083 & 093
Native Education Centre	PHYS 061 & 071	
Yukon College	PHYS 050	PHYS 060

Social Sciences Transfer Guide

INSTITUTION:	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College			PSYC 080
Capilano College	BSOC 031	BSOC 041 BESC 041	BGEO 042 or BGEO 052, BHST 042 or BHST 052
College of New Caledonia	CNST 030		
College of the Rockies	SOST 070	SOST 080	HIST 090, GEOG 090, Social Psychology 090
Douglas College			
Kwantlen University College			
Langara College			
Malaspina University-College	SOST 030	SOST 047	HIST 067, GEOG 067
Nicola Valley Institute of Tech.		NAST 050	NAST 060
North Island College	SOC 030	SOC 050	GEO 060, HIS 060, FNS 065
Northern Lights College	SOST 030	SOST 040	GEOG 050, HIST 050 LAW 050
Northwest Community College	SOSC 030	SS 040	GEOG 050, HIST 050, FNST 050
Okanagan University College	SS 70	SS 011	EC 012, HIST 012, GEOG 012, LAW 012
Open Learning Agency/BCOU	SOST 010	SOST 028, SOST 024	HIST 030, FNST 030, GEOG 030, FNST 040
Prince George Native Friendship Centre	PGSS 010		PGGE 030
Selkirk College	SOST 049 or SOST 10	SOST 050	HIST 051
University College of the Cariboo	SS 040	SOST 011 PSYCH 050	SOSC 060 or NAST 060 or BUAD 061
University College of the Fraser Valley	SS 071 or SS 072	SS 082	SS 090 or Humanities 090
Vancouver Community College	SOC SC 051	ENG 098 & 099, FNST I & II (061-071)	EC 094 & 095 PSY 081 & 091 GEOG 094 plus 095 or 098 (2 for credit) HIST 095 plus 094 or 098 (2 for credit) LAW 082 & 092
Native Education Centre		FNS 061 & 071	FNS 081 & 091 SOC 081 & 091 CUL 081 & 091 SGV 081 & 091

First Nations Range of Courses

INSTITUTION	COMPUTER STUDIES	EDUCATION & CAREER PLANING	ENGLISH	SCIENCE	SOCIAL SCIENCES
INTERMEDIATE					
Native Education Centre (VCC)	CST 041 & 051	EDCP 041 & 051 (VCC)	First Nations ENG 041 & 051 (VCC)	SC 051	
NVIT	COMP 040		ENG 40		
Northwest Community College			First Nations 030		
Prince George Native Friendship Centre		PGEC 010 (OLA)	PGEN 101 (OLA)		PGSS 010 (OLA)
Tl'azt'en Nation			ENG 014 (OLA)		
ADVANCED					
Native Education Centre (VCC)	CST 061 & 071		First Nations ENG 061 & 071 (OLA)	SC 061 & 071, BIOL 061 & 071, CHEM 061 & 071, PHYS 061 & 071	FNS 061 & 071 (VCC)
NVIT	COMP 050	CRLS 050	ENG 50	BIOL 050	
Prince George Native Friendship Centre		PGEC 020 (OLA)	PGEN 020 (OLA), ATEN 045 (CNC)		
Tl'azt'en Nation		EDCP 024 (OLA)		FOSC 020 (OLA)	
Vancouver Community College					FNST I & II (061-071)
PROVINCIAL					
Native Education Centre (VCC)	CST 081 & 091	EDCP 081 & 091 (VCC)	ENG 081 & 091 (L), or ENG 083 & 093 (T) (VCC)	BIOL 083 & 093, CHEM 083 & 093	FNST 081 & 091, CUL 081 & 091, SGV 081 & 091 (VCC), SOC 081 & 091
NVIT		CRLS 060	ENG 60		NAST 060
North Island College					FNS 065
Northwest Community College					FNS 050
Open Learning Agency/BCOUD					FNST 030, FNST 040
Prince George Native Friendship Centre			PGEN 030 (OLA)		PGGE 030 (OLA)
Tl'azt'en Nation				FOSC 030 (OLA)	
UC of the Cariboo					Native Studies 060

NOTE: These courses are already articulated courses within the system but are presented in this template to show the range of offerings of ABE courses at aboriginal institutions as well as specific First Nations courses throughout the system. For Mathematics courses at NVIT and NEC see p. 20-21

GENERIC TOPIC OUTLINES

COMPUTER STUDIES

Computer Studies: Fundamental Level - Computer Skills

Goal Statement

Computers are increasingly becoming a pervasive part of daily life in personal, work and educational situations. Computer skills are introduced at the fundamental level to help students gain the confidence to perform basic computer operations.

Core Skills

The students will be able to demonstrate the following skills:

A. Keyboarding
- use correct touch typing techniques and procedures for letters but not for top row numbers/symbols
- achieve an adjusted typing speed of 10 wpm

B. Basic Knowledge of Computers
- list the basic parts of a computer system (system unit, monitor, keyboard, mouse, floppy disk drive, hard disk drive and printer)
- demonstrate the ability to properly start and shut down a computer system
- demonstrate the ability to start and close a program
- describe a diskette and its care and limitations
- describe some common uses of computers in society
- use a mouse
- demonstrate the ability to operate a printer (power on, put on line/off line and load paper)

C. Word Processing
- create a new word processing document
- edit a document
- save a document to a disk
- print a document
- retrieve a document from a disk
- use tools such as a spell checker or thesaurus

D. Electronic Communication
- browse the Internet
- send and receive email

Computer Studies: Intermediate Level - Computer Skills

Goal Statement

Computers are increasingly becoming a part of daily life in personal, work and educational environments. The goal of an Intermediate Level computer course is to introduce adult learners to the use of the computer as a tool so that they will become more self-confident and therefore able to function more efficiently with a computer.

Core Skills

Students will be able to demonstrate the following learning outcomes:

A. Keyboarding

- use correct touch typing techniques and procedures
- achieve an adjusted typing speed of 20 wpm

B. Introduction to Computers

- list the basic parts of a computer system (system unit, monitor, keyboard, mouse, floppy disk drive, hard disk drive and printer)
- demonstrate the ability to properly start and shut down a computer system
- demonstrate the ability to launch and terminate an application program
- describe a diskette and its care
- develop an appreciation of the evolution of computer technology and the range of applications in society
- describe commonly used computer terminology and acronyms
- describe the difference between hardware and software
- use a mouse
- demonstrate the ability to operate a printer (power on, put on line/off line and load paper)

C. Operating System

- describe the basic operations of an Operating System (launching applications programs and managing system resources)
- demonstrate the ability to correctly name and locate files
- demonstrate the ability to perform basic file operations using the operating system (copy, move, erase and rename)

D. Word Processing

- create a new word processing document
- edit a document, including cutting and pasting text
- print a document
- save a document to a disk
- retrieve a document from a disk
- use tools such as a spell checker or thesaurus
- format a page using basic page layout properties (margins, justification, boldfacing and line spacing)
- demonstrate the ability to use help features and tutorials

E. Electronic Communications

- browse and search the Internet
- send and receive email with file attachments

F. Options

- importing information from other sources such as graphs, graphics, spreadsheets, databases and the Internet
- perform basic spreadsheet and database operations
- prepare and deliver a presentation using a computer

Computer Studies: Advanced Level

Goal Statement

- The goals of Computer Studies at the Advanced Level are: to provide students with a survey of the major applications of computers;
- to develop an understanding of computers and concepts to aid the students' employment opportunities, personal productivity, and enjoyment;
- to enable the student to acquire skills to contribute to, and participate productively in society.

An Integrated Resource Package containing learning outcomes, suggested instructional and assessment strategies and suggested resources has been developed for use in Advanced Level Computer Studies.

Learning Outcomes

1. Hardware

A. Computer System Overview

It is expected that learners will be able to:

- identify, name and describe basic components of a computer system:
  - system unit
  - memory and secondary storage devices
  - input and output devices

B. System Unit Components

It is expected that learners will be able to:

- identify, name and describe basic components of a computer system unit:
  - motherboard
  - expansion slots and buses
  - Central Processing Unit (CPU)
  - memory (RAM)
  - peripheral connections (parallel, serial, SCSI, USB)

C. Memory and Secondary Storage

It is expected that learners will be able to:

- identify, name and describe Secondary Storage Devices, including:
  - floppy disks
  - hard disks (fixed and removable)
  - optical and magneto-optical storage devices (e.g. CD-ROM, DVD)
  - tape drives
- recognize and use capacity descriptors (KB, MB, GB, TB)
- describe proper floppy disk handling procedures and care
- distinguish between and describe the function of RAM, ROM, BIOS, CMOS, virtual memory and cache.

D. Input and Output

It is expected that learners will be able to:

- identify, name, describe, and distinguish among input and output devices (and associated software):
  - keyboard, pointing devices, scanners
  - video adapters and displays (CRT, LCD)
  - printers (various types)
  - voice
  - describe how various input and output devices can be used to assist people with disabilities

2. Operating a Microcomputer

It is expected that learners will be able to:

- distinguish between System Software, Utility Software and Application Software and describe the purpose of an operating system
- differentiate among various commonly used operating systems
- employ operating system(s) to perform basic operations of disk and file management.
  - state the rules and conventions of file naming
  - employ wildcard characters in file management
  - organize files on storage devices and designate drives, folders and files
  - perform management functions to locate, list, display properties of, copy, rename, move, (un)delete folders and files
  - describe (sectors, tracks, index) and perform disc formatting
  - recognize a variety of common program and data file types and their associated extensions
- describe the problem of computer viruses and methods to detect and remove them
- demonstrate care, maintenance, and protection of computer equipment

3. Computers in Society

It is expected that learners will be able to:

- identify the effect of computers on their everyday lives (e.g. databases-subscription lists, ATMs, the Internet, computer record systems, income tax)
- give examples of how computers are affecting career opportunities
- trace the history of computer technology and identify current trends
- state the purchasing considerations from the perspective of an informed consumer (e.g. warranty, service, licensing, needs assessment, market trends)
- provide examples of ethical issues involving computers in society, such as protection of privacy and copyright

4. Word Processing

It is expected that learners will be able to perform basic operations of word processing:

- create a word processing document and save it to a specified disk and directory
- select any amount of text and format the character attributes
- format the indentation, the alignment, and the spacing of paragraphs
- identify non-printing characters (space, tab, new line, new paragraph) as displayed on the screen
- move, copy, and delete text
- insert a page break into a document

- use footnotes/endnotes
- use the find and the replace functions
- use the spell checker/thesaurus
- insert a graphic into a document
- set page margins
- use headers and footers (including page numbering, filename, and date codes)
- preview and print a document
- recognize different document output devices (printers and faxes)
- recognize that different file formats originating from different word processors and versions may be incompatible, requiring file conversion routines
- save as an HTML document

5. Spreadsheets

It is expected that learners will be able to:

- perform basic spreadsheet operations:
- enter and format data (numbers, text, data series)
- create simple formulas (using basic operators and functions)
- copy or move data and/or formulas, utilizing absolute and relative cell addresses and ranges
- change cell characteristics (column widths, alignments, fonts, etc.)
- control page layout such as orientation, scaling, grid lines
- use a spreadsheet to predict outcomes based on specific parameters (e.g. mortgages, investments, financial forecasting and planning)
- create several kinds of charts based on spreadsheet data
- save as an HTML document

6. Internet

It is expected that learners will be able to:

- describe the basic structure and functioning of the Internet and define current terminology such as URL, ISP, WWW, and backbone
- describe the various options for computer connectivity (e.g. cable modems, ISDN, XDSL)
- send and receive e-mail using proper etiquette
- use a web browser to access and navigate through a web site
- use search engines to locate and bookmark information
- save text and graphical information from a web site
- describe how business is conducted on the Internet, including security issues

7. Graphics Applications

It is expected that learners will be able to:

- create and manipulate a graphic image (e.g. Paintbrush, Draw)
- differentiate between various bit-mapped and vector- based graphic file formats (e.g. .BMP, .JPG and .WMG)

8. Integration of Applications

It is expected that learners will be able to:

- combine data/files from various applications (e.g. mail merge, importing spreadsheet data and charts into a document, inserting a graphic image

Options

1. Databases

It is expected that learners will be able to:

- describe the structure of a database: records, fields, and key fields
- perform simple database procedures:
  - design a form
  - enter, edit and format data
  - examine, manipulate records in different views; delete and insert records; sort records in different ways
  - format, insert, move, hide and un-hide fields
  - design, create, and print a report consisting of selected fields
- search and query a database for information based on specified parameters

2. Computer Programming

It is expected that learners will be able to:

- create simple programs in a given programming language such as BASIC or Visual Basic
- describe the purpose of compilers and/or interpreters
- create and make use of computer designs or algorithms
- write basic input, processing and output instructions

3. Touch Typing

It is expected that learners will be able to:

- significantly increase their typing speed
- demonstrate proper keyboarding techniques

Computer Studies: Provincial Level - Computer Applications

Goal Statement

The goals for the Provincial Level Computing Studies are:

- to develop problem solving/critical thinking skills utilizing computer application software as a tool. Towards this end, project work will be emphasized.
- to build on computer software skills and outcomes as described by the learning outcomes of the advanced level computing studies.

Learning Outcomes

Because of the wide and ever expanding nature of computing applications, it is both impossible and undesirable to include all outcomes in a single course. A computing studies course at the provincial level will consist of a minimum of two from the following categories:

1. Information Technology

It is expected that the learner will be able to:

- identify/explain/demonstrate how communications hardware and software function
- send, receive and organize mail and file attachments
- demonstrate proficient use of the Internet including:
    - understanding how the Internet was developed and how it functions
    - use of a WWW browser
    - search techniques using one or more search engines
    - downloading files
    - participation in one or more newsgroups
    - HTML (hypertext markup language)
    - demonstrate an awareness of ethical and security issues

2. Publishing/Presentation

Learning outcomes shall be applied to one or more of the following:

A. advanced word processing
B. desktop publishing
C. World Wide Web (HTML) publishing
D. multimedia presentation

It is expected that the learner will be able to:

- organize and present a variety of text, graphic and other data (e.g. animation and sound), following appropriate design and layout procedures
- demonstrate the use of templates, "wizards" and other productivity tools
- merge documents and integrate tables, charts and graphics
- know the various file formats used for text, graphics, sound, animation and publication files
- demonstrate the ability to change file formats where possible
- create, modify and manipulate digital graphic images (e.g. scan, draw, paint)
- retrieve a graphic/animation/sound file through using either CD-ROM or the Internet
- apply, where appropriate, correct typographic principles involving font selection, point size, justification, kerning, bullets, headers and footers
- generate links, cross references, footnotes, indexes and tables of contents where appropriate

HTML Option: learn and be able to apply Java Script to HTML documents.

3. Advanced Spreadsheets

It is expected that the learner will be able to:

- enter, format and edit data
- use and write formulas
- create and modify charts
- create reports
- manage and analyze data
- create macros or use a programming language to customize a spreadsheet
- design a spreadsheet to analyze, interpret and project outcomes in an applied situation

4. Database Management

It is expected that the learner will be able to:

- design and create flat file and relational databases
- maintain and modify the structure of existing databases
- correctly formulate queries
- create and edit forms
- create and edit reports
- be aware of various social and ethical issues involving databases

5. Networking

The learner will be able to:

- state advantages and disadvantages of using networks
- describe different network configurations (printer network, LAN, WAN, etc.)
- describe and diagram different network topologies (point-to-point, star, bus, etc.)
- describe the advantages and disadvantages of different network data transmission media (twisted pair, coaxial cable, optical fibre, and wireless)
- list and describe common network operating systems and network protocols
- describe various server models, including file servers and client/server systems
- list Internet/intranet similarities and differences
- describe management issues, including traffic analysis and security

6. Programming*

***A Note of Caution**: The Programming option must not be considered as equivalent to or as a replacement for the Computer Science course articulated at the provincial level.

This option introduces the learner to programming fundamentals. The learner will write programs in a high level language that demonstrate output only and input-process- output operations. While the emphasis of the Computer Science course is software engineering, this option focuses primarily on the elements of programming.

It is expected that the learner will be able to:

- test, debug and modify program code
- define data types and assign meaningful identifiers to constants and variables
- use input statements to access the keyboard and use output statements to display text and graphics
- use conditional expressions to alter program flow

- use iteration structures to create loops
- write simple procedures
- write programs to demonstrate mathematical processing and simple character and graphic manipulations

Computer Science: Provincial Level

Goal Statement

The goals for the provincial level Computer Science course are:

- to develop problem solving skills whereby the student is able to analyze a problem, devise an algorithm or process to solve the problem, use this process to write a computer implementation of the solution and to test the solution;
- to adequately prepare students for a career or program of studies where logical thought and structured design processes are required.

Generic Topic Outline

Core Topics

A. Software Engineering (Problem Analysis and Design of Solution)

Given a problem suitable for a computer programming solution, the student shall:

- analyze the problem so that it is clearly understood;
- identify the inputs, outputs and appropriate data structures;
- break down the solution of the problem into component modules;
- design the structure of each module, documenting it in structured English, using a method such as pseudo-code or top-down charts. It shall describe in detail all inputs, processes or algorithms used and format of outputs;
- design an appropriate user interface;
- produce computer source code as a software design implementation. A structured high level language will be used. Differences between source code and machine code will be understood;
- test, debug and modify program code until error free;
- document the solution, both internally and externally.

B. Elements of a programming language

The student shall demonstrate knowledge of the following program elements through use of a high level programming language. Please note that <u>any</u> high level Programming Language (e.g. Java, Visual Basic, C++, Pascal or QBASIC) may be used.

- data types (including Integer, Real, Boolean, Character and String) and their representation as bits and bytes;
- meaningful identifier names for constants, variables, procedures (or subroutines) and programs;
- the process of breaking down a computer program into a series of subprograms directly corresponding to the modules identified in the software design. The subprograms shall be written as procedures, functions, subroutines and the like;
- the advantages and disadvantages of, and differences between global variables, local variables and parameters. The scope of variables and the occurrence of side effects shall be explained;
- input and output statements shall access the keyboard, printer, disk and disk files while output devices are the monitor, printer and disk files;

- arithmetic expressions using the addition (+), subtraction (-), multiplication (*), and division (/, DIV and MOD) operators as applied to real and/or integer operands. Includes order of operation (including use of parentheses) and use of the assignment operator (: = or =);
- string and character manipulation and processing. Use of substrings, concatenation and other language-specific program features; built-in and programmer-defined functions and constants. Existence of the built-in PI constant;
- conditional expressions used to alter program flow. (e.g. If...Then...Else or case structures). Included in this is use of the relational operators (=, < >, >, <, >=, and <=) the logical operators (AND, OR, NOT) and Boolean variables (True/False) and nested conditional statements (e.g. If...Then...Else...If...Then
- iteration structures (e.g. For...Do, While...Do and Repeat...Until). Definite (e.g. For...Do) vs Indefinite (e.g. While...Do and Repeat...Until) loops. Nested loops. Avoidance of infinite loops;
- one dimensional arrays.

EDUCATION & CAREER PLANNING

Career Preparation

Goal Statement

The goal of Education and Career Planning is to prepare adult learners with life and employment readiness skills. Students will be prepared to pursue individual occupational and/or educational goals within a changing and diverse world.

Generic Topic Outline

Education and Career Planning involves the development of a broad range of core skills. These skills are appropriate for Intermediate, Advanced and Provincial levels. Of the nine skill areas listed, 1 and 2 are considered CORE as well as five of the remaining seven. While suggestions for specific topics are provided for each major skill area, it is recognized that the exact content of courses may vary.

Core Skills

1. Communication Skills

Students will:

- identify and practice active listening skills in a variety of situations
- demonstrate a knowledge of the range of effective speaking strategies
- extract and assess information from visual media
- acknowledge and recognize cross-cultural styles in communication
- interpret non-verbal communication cues
- develop and apply effective writing processes in a variety of contexts

2. Career Exploration Skills

Students will:

- discover interest patterns related to career paths
- undertake occupational research
- evaluate aptitudes related to career paths
- investigate and develop a personal network
- participate in a work experience

3. Study Skills / Time Management

Students will:

- recognize how their personal learning style affects the way they perceive and process information and will be able to develop strategies to effectively work in all four styles
- identify and practice reading skills necessary to gather information effectively using techniques of active reading and will identify techniques of previewing and reviewing college-level materials
- develop and apply effective note-taking strategies
- identify strategies for effective time management including the use of time grids and long-term planning devices
- identify and use a variety of memory techniques and strategies to recall what they read and study
- perform basic tasks in word processing, databases and spreadsheets
- describe personal responsibilities as students in a college atmosphere

4. Interpersonal Skills

Students will:

- examine group process and practice the skills necessary for successful group experiences
- review problem solving models and using those models develop decision making strategies
- research the various methods of conflict resolution and demonstrate their use
- clarify the definition of assertiveness and implement successful techniques
- analyze the reasons for bias and develop the ability to recognize it in everyday situations
- identify issues around gender and practice interpersonal skills with awareness of and sensitivity to gender assumptions

5. Personal Skills

Students will:

- recognize how personal self-esteem is a life long process
- recognize personal feelings and their influence
- employ strategies to deal with anger
- assess and manage stress
- analyze and utilize time management strategies
- explore and connect personal assumptions with behaviour
- clarify personal values and their impact on choices

6. Living Skills

Students will:

- design and implement a personal budget
- formulate financial planning for the future
- investigate varying nutrition systems and weigh against own personal health
- assess individual health strengths and concerns
- explore addiction education
- investigate and utilize community resources
- strengthen personal support system and advocacy options
- obtain various first aid certificates
- question and study self-defence skills

7. Job Preparation

Students will:

- plan the major steps of the job search process
- clarify the rules of a good resume and design an efficient one
- identify and practice the best way to conduct oneself in answering questions during an interview
- identify, choose and make different types of cover letters corresponding to the job search
- select job search strategies
- recognize and implement entrepreneurial ideas and strengthen the needed skills
- strengthen ongoing support and resource networks to maintain future job search

8. Educational Plan

Students will:

- demonstrate the ability to set short and long term educational and career goals
- familiarize themselves with student support services
- access and extract information from academic calendars

9. Diversity

Students will:

- look beyond themselves and investigate the various types of relationships and interactions they have, or will have, with others
- identify methods of developing positive relationships, including effective communication techniques
- be aware of gender and equity issues
- appreciate the diversity of relationships in Canadian society

Directions to Submitters of Courses

A generic form should be used and received by the chair of the working committee one month before the meeting. The form needs to list 1 and 2 as CORE skills as well as five of the remaining seven for EDCP; proposal submissions will identify how these core skills are met.

ENGLISH

Goal Statement

Mastering English is an ongoing process that involves a variety of core skills. The development of these skills is a continuum. Consequently, many of the core skills are basic to all levels. As students progress, they will be expected to apply these skills to more difficult materials and tasks at each subsequent level. All skills listed here are considered to be core, with the exception of the literary study at the Advanced Level, which is a suggested topic.

English students are also expected to acquire the communication skills that will provide them with the foundation to get, keep, and progress in a job. The set of outcomes at the Provincial Level designated 'B' was chosen to specifically address communication skills required in the work place. These skills include reading, comprehending, and using visual materials (i.e. graphs, charts and displays), effective writing, listening and speaking, critical thinking, and participating in group work.

Students who have completed Advanced Level work will have the skills necessary to enter Provincial Level courses and vocational, career, and technological programs which require English 12 prerequisites.

ABE instructors are expected to use an integrated and holistic approach to reading, writing, speaking, and listening skills. These skills are also part of career preparation.

An Integrated Resource Package (IRP) containing learning outcomes, suggested instructional and assessment strategies, and suggested resources has been developed for use in Intermediate and Advanced Level English.

Intermediate Level

Learning Outcomes

1. Critical Thinking

Critical thinking applies to all of the learning outcome areas. Good critical thinking skills enhance all other communication skills.

a) recall and interpret information literally
   i) identifying subject/topic, main ideas, supporting ideas, and sequence
b) summarize information
c) make inferences
   i) using prior knowledge
   ii) synthesizing information
   iii) evaluating information for accuracy, relevance, and importance
   iv) distinguishing fact from opinion
   v) recognizing underlying assumptions (bias and tone)
   vi) identifying purpose and audience
d) compare and contrast
e) classify
f) define
g) think creatively
h) draw conclusions
i) respond to information creating solutions, identifying impact of solutions, and modifying solutions (problem solving)

2. Oral/Aural Communication

Oral communication skills are practiced at the Intermediate and Advanced level to enable students to participate fully in society.

Applied oral communications skills include the ability to:

a) ask questions to clarify meaning
b) take messages
c) use voice appropriately and effectively
d) demonstrate effective listening skills
e) actively participate in conversations and group discussions
f) use verbal language and body language in ways appropriate in style, tone, and level of complexity to the audience and the occasion
g) respond appropriately to listener feedback
h) paraphrase
i) summarize
j) deliver an effective oral presentation to inform or persuade
k) interview and be interviewed for information
l) provide useful and appropriate oral feedback in a variety of situations (peer editing, group discussion, classroom participation, etc.)

3. Reading, Research, Reference

Reading skills are developed in conjunction with writing and speaking skills. Students should read to understand periodicals, reports, technical materials, and literature.

a) use context clues and word structure analysis (i.e. prefix, suffix, root)
b) recognize homonyms, antonyms and synonyms
c) use both a dictionary and a thesaurus for expanding vocabulary
d) read to locate specific information
e) use standard reference materials (dictionaries, encyclopedias, thesauruses, catalogues, operating manuals, CD-ROMs, Internet)
f) use in-book reference tools (index, table of contents, glossary)
g) read quickly for main ideas only, use skimming and scanning techniques for rapid overview of the nature and content of material and for locating detailed information
h) develop skills in outlining, memorizing, exam taking and note-taking
i) paraphrase ideas
j) recognize illogical argument, fallacies, stereotypes, bias and propaganda
k) identify point of view
l) define and avoid plagiarism
m) critically read a book

4. Written Communication

Grammar and Spelling

a) use correct grammatical structure and punctuation
b) edit for grammar
c) develop spelling strategies

The Writing Process (prewrite, draft, revise, edit)

a) gather ideas, define and narrow the topic, evaluate, select and order material into an organized paragraph, essay, summary, report, and business letter
b) adjust content and style of writing to suit purpose, audience and situation. For example, write business letters, letters of application, resumes, and memos
c) revise and edit work to improve content organization, word choice, phrasing, sentence and paragraph structure, spelling, punctuation, and mechanics
d) write narrative and descriptive, and explanatory and persuasive (expository) pieces

e) evaluate a book, movie, play, television program, documentary, or piece of music, and write a review
f) produce immediate writing on demand: business writing with minimum preparation time, LPI prep, GED prep (exams), etc.

5. Co-operative Communication

Applied communication skills include the ability to function in a variety of settings and in differing roles.

a) establish co-operative working relationships with others
b) recognize and respect diversity and individual differences
c) recognize non-verbal cues
d) recognize workplace customs
e) problem-solve
f) build consensus
g) resolve conflict
h) establish goals and priorities
i) prepare and follow schedules
j) respond appropriately to thoughts, opinions, and work of others
k) challenge assumptions and traditions constructively

6. Media Literacy

Much communication in today's world is via film, video, and graphic presentation. Dealing with these powerful communication tools requires special skills.

a) identify and track a theme, topic, or specified content from a variety of media
b) take notes, organize notes, and write summaries
c) interpret common graphics (graphs, charts, tables)
d) identify and discuss examples of fact and of opinion
e) exhibit a critical awareness of media messages (e.g. TV ads, billboards, corporate sponsorship, videos, brochures and pamphlets)
f) recognize the structural differences and impacts upon audiences of various media presentations (TV vs print news, etc.)

7. Computer Literacy

Computers have become vital to effective communications in today's society. This section is strongly recommended for inclusion in the curriculum.

a) use computer hardware and peripherals (keyboard, mouse, printer, etc.)
b) use word processing software including spell check and thesaurus, and import information from other sources (e.g. spreadsheets and data bases)
c) communicate effectively using electronic mail

Advanced Level

Learning Outcomes

1. Critical Thinking

Critical thinking applies to all of the learning outcome areas. Good critical thinking skills enhance all other communication skills.

a) recall and interpret information literally i) identifying subject/topic, main ideas, supporting ideas, and sequence
b) summarize information
c) make inferences
i) using prior knowledge

ii) synthesizing information
iii) evaluating information for accuracy, relevance, and importance
iv) distinguishing fact from opinion v) recognizing underlying assumptions (bias and tone)
vi) identifying purpose and audience

d) compare and contrast
e) classify
f) define
g) think creatively
h) draw conclusions
i) respond to information creating solutions, identifying impact of solutions, and modifying solutions (problem solving)

2. Oral/Aural Communication

Oral communication skills are practiced at Advanced levels to enable students to participate fully in society. Applied oral communications skills include the ability to:

a) ask questions to clarify meaning
b) take messages
c) use voice appropriately and effectively
d) demonstrate effective listening skills
e) actively participate in conversations and group discussions
f) use verbal language and body language in ways appropriate in style, tone, and level of complexity to the audience and the occasion
g) respond appropriately to listener feedback
h) paraphrase
i) summarize
j) deliver an effective oral presentation to inform or persuade
k) interview and be interviewed for information
l) provide useful and appropriate oral feedback in a variety of situations (peer editing, group discussion, classroom participation, etc.)

3. Reading, Research, Reference

Reading skills are developed in conjunction with writing and speaking skills. Students should read to understand periodicals, reports, technical materials, and literature.

a) use context clues and word structure analysis (i.e. prefix, suffix, root)
b) recognize homonyms, antonyms and synonyms
c) use both a dictionary and a thesaurus for expanding vocabulary
d) read to locate specific information
e) use standard reference materials (dictionaries, encyclopedias, thesauruses, catalogues, operating manuals, CD-ROMs, Internet)
f) use in-book reference tools (index, table of contents, glossary)
g) read quickly for main ideas only, use skimming and scanning techniques for rapid overview of the nature and content of material and for locating detailed information
h) develop skills in outlining, memorizing, exam-taking and note taking
i) paraphrase ideas
j) recognize illogical argument, fallacies, stereotypes, bias and propaganda
k) identify point of view
l) define and avoid plagiarism
m) critically read a book
n) recognize and define business and technical terms common to industry
o) explain business, scientific and/or technical information from text
p) apply research skills to more complex tasks and difficult materials
q) use library cataloguing system
r) use quotation properly from secondary sources
s) prepare a list of works cited

t) identify and critically discuss literary elements in writing, audio and visual material: plot, theme, character, setting, conflict
u) critically evaluate a book, movie, play, television program, documentary or piece of music and write a review
v) use documentation styles (APA, MLA, Chicago)

4. Written Communication

Grammar and Spelling

a) use correct grammatical structure and punctuation
b) edit for grammar
c) develop spelling strategies
d) use parallel construction and correct misplaced or dangling modifiers
e) use complex sentence structure
f) edit for grammar
g) recognize clichés, jargon, slang, and wordiness in sentences

The Writing Process (prewrite, draft, revise, edit)

a) gather ideas, define and narrow the topic, evaluate, select and order material into an organized paragraph, essay, summary, report, and business letter
b) adjust content and style of writing to suit purpose, audience, and situation. For example, write business letters, letters of application, resumes, and memos
c) revise and edit work to improve content organization, word choice, phrasing, sentence and paragraph structure, spelling, punctuation, and mechanics
d) write narrative and descriptive, and explanatory and persuasive (expository) pieces
e) evaluate a book, movie, play, television program, documentary, or piece of music and write a review
f) produce immediate writing on demand: business writing with minimum preparation time, LPI prep, GED prep (exams), etc.
g) write essays of greater length and complexity than at the intermediate level with particular emphasis on expository (explanatory and persuasive) structures
h) write an analytical report responding to some of the following: editorials, magazine articles, technical writings, investigative writings or advertising
i) describe workplace documents: business reports, agendas, memos, E-mail, letters
j) gather research and organize it into a research paper
k) be able to use an approved style guide format
l) identify and critically discuss literary elements in written, audio and visual material: plot, theme, character, setting, conflict
m) critically evaluate a book, movie, play, television program, documentary or piece of music and write a review
n) explain the use of adjuncts to writing, i.e. graphics

5. Co-operative Communication

Applied communication skills include the ability to function in a variety of settings and in differing roles.

a) establish co-operative working relationships with others
b) recognize and respect diversity and individual differences
c) recognize non-verbal cues
d) recognize workplace customs
e) problem-solve
f) build consensus
g) resolve conflict
h) establish goals and priorities
i) prepare and follow schedules
j) respond appropriately to thoughts, opinions, and work of others
k) challenge assumptions and traditions constructively

6. Media Literacy

Much communication in today's world is via film, video, and graphic presentation. Dealing with these powerful communication tools requires special skills.

a) identify and track a theme, topic, or specified content from a variety of media
b) take notes, organize notes, and write summaries
c) interpret common graphics (graphs, charts, tables)
d) identify and discuss examples of fact and of opinion
e) exhibit a critical awareness of media messages (e.g. TV ads, billboards, corporate sponsorship, videos, brochures, and pamphlets)
f) recognize the structural differences and impacts upon audiences of various media presentations (TV vs print news, etc.)

7. Computer Literacy

Computers have become vital to effective communications in today's society. This section is strongly recommended for inclusion in the curriculum.

a) use computer hardware and peripherals (keyboard, mouse, printer, etc.)
b) use word processing software including spell check and thesaurus, and import information from other sources (e.g. spreadsheets and data bases)
c) communicate effectively using electronic mail

Provincial Level

Learning Outcomes

The following learning outcomes provide the framework for developing either a Provincial level English Literature course or a Provincial level Technical and Professional English course. They are to be used in addition to those listed for the Intermediate and Advanced Level courses. The choice of the alternatives, A or B in sections 3 and 4, depends on whether A, literature, or B, technical and professional writing, is the focus of the course. Either will fulfill the Provincial Level requirement.

1. Critical and Creative Thinking

- recognize tone, including irony, and understatement in poetry, short stories, drama, or other writing for technical and professional purposes
- evaluate argument for validity, reliability, currency, and objectivity
- recognize structural elements associated with particular standard formats for literary, or technical and professional communications
- employ advanced problem-solving skills through cooperative communications activities (e.g. cooperative team development of business proposal)
- demonstrate an awareness of the power of language in literary, or in technical and professional communications
- demonstrate the importance of language and composition in furthering the problem solving process (initiating, developing, and organizing thought)
- demonstrate an understanding of how communication formats influence language choices and usage

2. Oral/Aural Communications

- deliver an oral presentation based on research
- speak effectively, adjusting for audience, purpose, and situation to inform, persuade, and interact in formal and informal situations
- effectively give and respond to feedback during oral presentations

- employ a variety of technologies to facilitate and enhance speaking, including telecommunications hardware and software

3. Reading, Research and Reference

- paraphrase, with critical understanding of argument, articles by major authors
- apply knowledge of the influence, writing style, and background of particular authors to understanding of their writings
- use the resources of a library, such as catalogues and indexes, to gather information for research
- access the Internet and other electronic media including CD-ROM files to gather information for research

AND EITHER A OR B

A)

- use appropriately such literary terms as conflict, theme, character, mood, tone, irony, archetype, and setting in analyses of poetry, short stories, and drama
- critically discuss such techniques as foreshadowing, irony, and tone in poetry, short stories, novels, and dramas
- place a piece of literature in its historical context
- evaluate critically the social and personal benefits of reading great literature

B)

- interpret technical and professional information conveyed in graphic and other non-verbal ways
- distinguish between implicit and explicit messages in technical and professional communications
- evaluate the effectiveness of the student's own and other technical and professional presentations using criteria that include the following:
- plain language
- coherence and organization
- consistency in the application of usage conventions
- relevance to argument of supporting evidence and examples
- appropriateness to intended purpose and audience
- attention to detail

4. Written Communication

- edit their own work fully and competently
- use nuance of word choice effectively
- show good transition in written work
- create sentence variety in written work
- use the power of connotative language effectively
- gather information and organize it into a research paper or report of approximately 1500 words, or other assignments

AND EITHER A OR B

A)

- write a literary essay

B)

- create effective technical and professional communications products (reports: proposals, original research reports, secondary research reports, problem solving reports, investigative reports, laboratory reports, progress reports)

5. Cooperative Communication

- explain the value and limitations of collaborative work
- collaborate and consult effectively with others in completing communications tasks through means that include:
  - interacting confidently
  - assuming responsibility for their roles in teams
  - respecting and promoting respect for the contributions of other team members
  - demonstrating a commitment to the team and to project goals
- use a variety of resources and technologies when working with others
- evaluate group processes and individual roles in and contributions to group processes

6. Media Literacy

- see Intermediate and Advanced Media Literacy

7. Computer Literacy

- employ a variety of research tools and resources including Internet search engines, electronic bulletin boards, information sites, and on-line services
- use appropriate software for presentations and research projects
- use technology to support and enhance writing skills, organize information, design page layouts, and develop and incorporate graphs, charts and other illustrative aids into documents

FUNDAMENTAL LEVEL SKILLS

Goal Statement

Adult Basic Education at the Fundamental level is designed to provide students with the skills necessary to cope more effectively in personal, work and educational situations. Although the skills are presented as discrete units, an integrated approach is recommended.

The subject areas described in the Fundamental Level are Coping Skills, English (Reading and Writing) and Mathematics. While Social Studies and Science are not delineated as discrete content areas here, an integrated approach to teaching fundamental skills and strategies incorporates Social Studies and Science content. Such an approach assists learners to acquire a better understanding of themselves, their communities and their participation in Canadian society by using real-life materials, activities and experiences in their studies.

Computers are increasingly becoming a pervasive part of daily life in personal, work and educational situations. Computer skills are introduced at the fundamental level to help students gain the confidence to perform basic computer operations.

Ideally, through the process of upgrading, students integrate skills and strategies and use them in their daily lives. The outcome is improved self-confidence, self-reliance and self-evaluation.

Although no attempt has been made to dictate sequence, delivery mode, or teaching style in this outline, students' personal literacy goals should be reflected in the design of a Fundamental Level program. The topics listed with each core skill are neither exhaustive nor exclusive. Additional information can be found in the Ministry's Adult Basic Education and Literacy Curriculum Guides.

Prerequisites

Ability to speak and understand English.

Fundamental Level I. Learning Skills

General Statement

The communicative and adaptive skills should enable students to develop effective strategies for interacting with other people in a variety of situations, for problem solving and for responding to information.

It is recommended that learning skills be integrated with other instructional areas. Informal assessment will indicate where discrete instruction is necessary.

Core Skills

- Communicative Skills
- Adaptive Strategies

A. Communicative Skills

The student will demonstrate the ability to:

1. Listening and Viewing
   a) establish purposes for listening and/or viewing
   b) develop literal, interpretive, inferential, and critical comprehension skills

c) follow instructions and directions

2. Speaking
   a) organize thoughts and ideas in terms of purpose, sequence, language, and conciseness
   b) give directions, explanations, and instructions
   c) seek, provide, and use information constructively

B. Adaptive Strategies

The student will demonstrate the ability to:

1. Learning Skills
   a) study effectively
   b) manage time effectively
   c) set goals effectively
   d) solve problems effectively
   e) write tests effectively
   f) become aware of self as learner: learning style, self-monitoring, self-correcting and self-evaluating

2. Computer Skills
   a) use basic knowledge of computers
   b) list the main (hardware) parts of the computer
   c) describe a disc and its care and limitations
   d) describe some common uses of computers in society
   e) use computer skills
   f) use correct touch typing techniques and procedures for letters but not for top row numbers/symbols
   g) achieve a typing speed of 10 wpm, or alternatively a speed equal to their handwriting speed
   h) word process
   i) create a document
   j) use simple editing tools including cursor control, backspace-delete, insert blank lines and spaces into documents, cut and paste sentence fragments and paragraphs
   k) save a document
   l) print a document
   m) retrieve a document from disc

3. Use community resources for information
   a) locate and access library
   b) locate and access and public agencies
   c) locate and access community access centers
   d) locate and access municipal/local resources
   e) locate and access health services
   f) locate and access community legal services

Fundamental Level II. English Skills

English skills have been divided into two sections: reading and writing. While the skills and strategies have been separated, it is clear that they overlap and complement one another.

SECTION ONE: READING

General Statement

Reading is a dynamic, interactive process. The reader integrates personal knowledge and experience with information from text to construct meaning. The skills and strategies of reading should be adjusted to accommodate the states of reading readiness, learning to read, and reading to learn. Reading at all levels is facilitated by instruction, which presents reading skills and strategies as parts of an integrated process focusing on reading as written communication.

Core Skills

- Reading Comprehension Skills
- Reading Comprehension Strategies
- Word Analysis Skills/Decoding Skills

A. Reading Comprehension Skills

Using a variety of real life materials including personal experience stories, magazine articles, novels, and short stories, the student will demonstrate the ability to:

1. Literal Comprehension
   a) identify subject/topic, main ideas, supporting details, and sequence

2. Interpretive Comprehension
   b) reconstruct the meaning intended by writer
   c) categorize and classify
   d) summarize

3. Inferential Comprehension
   a) synthesize/integrate experience and knowledge to gain new understandings
   b) predict

4. Critical Comprehension
   a) recognize comparison and contrast
   b) recognize cause/effect, outcome or sequence
   c) distinguish between fact and opinion, logic and illogic
   d) identify writer's point of view, tone, attitude, and underlying assumptions
   e) develop critical thinking skills, i.e. appreciation, judgment, character analysis

B. Reading Comprehension Strategies

The student will demonstrate the ability to:

1. Preview/survey: initial overview of large sections of text (chapters, etc.)
   a) note headings, titles, overviews
   b) self-question to activate prior knowledge: What do I already know about the topic?

2. Pre-read: overview of shorter sections of text
   a) change headings into questions

b) self-question: What is the author's purpose? How is the author presenting material? i.e. general to specific, cause-effect, question-answer, problem-solution, compare-contrast

3. Monitor evaluation of current level of understanding
   a) self-question: Do I understand what I am reading? What is the main idea? (paraphrase in own words.) How does this relate to what I already know?

4. Reflect: evaluation of comprehension in retrospect
   b) self-question: Did I understand what I just read? What is the main idea? (paraphrase in own words) How does this relate to what I already know?

5. Take notes, outline to integrate information

C. Word Analysis Skills/Decoding Skills

The student will demonstrate the ability to:

1. develop a sight vocabulary
2. use context clues
3. use the dictionary, glossary and thesaurus as tools for vocabulary development, pronunciation, meaning and spelling confirmation
4. use structural analysis (e.g. roots, affixes, syllabication, stress, compound words, contractions)
5. demonstrate phonemic awareness (short and long vowels, vowel combinations, single consonants and combinations, and associated word patterns)
6. demonstrate a strategy for learning and remembering new words

SECTION TWO: WRITING

General Statement

The writing process should focus on the written communication of information and ideas in a variety of practical situations and a variety of forms.

Students will be introduced to and practice the following writing skills.

- Writing Core Skills
- General Writing
- Grammatical Structures
- Punctuation
- Spelling
- Handwriting

A. General Writing:

In writing, the student will demonstrate the ability to:

1. collect and organize ideas using techniques such as free writing, brain storming, note taking, outlining, and thought maps
2. note take, outline, and prepare thought maps
3. use paragraph format including topic sentence, supporting details, and conclusion
4. produce coherent descriptive, narrative, and expository paragraphs
5. produce personal and business letters using a standard format
6. begin to write multi-paragraph compositions
7. fill out a variety of simple forms
8. respond to selected materials after reading, viewing, and/or listening

B. Grammatical Structures

In writing, the student will demonstrate the ability to:

1. identify and correct fragments and run-ons
2. use simple, compound, and complex sentences
3. use regular and irregular verb forms
4. use subject-verb agreement and consistent verb tense
5. use standard pronoun reference and agreement
6. use modifiers effectively

C. Punctuation

In writing, the student will demonstrate the ability to:

1. use capitals
2. use end punctuation
3. use commas
4. use quotation marks, semi-colons, colons, hyphens, and dashes

D. Spelling

In writing, the student will demonstrate the ability to:

1. develop effective spelling strategies such as accurate phoneme/grapheme representation (phonics), structural analysis, generalizations, and sight words
2. know common irregularly spelled words
3. use a dictionary and other spelling aids
4. recognize and use homonyms, antonyms, and synonyms
5. use rules for adding affixes
6. form contractions and abbreviations

E. Handwriting

The student will demonstrate the ability to:

1. Print/write with ease, legibility, and reasonable speed

Fundamental Level III. Mathematics Skills (Revision in Progress)

Goal Statement

Fundamental Level Mathematics will give students a strong foundation of basic skills, concepts, mathematical vocabulary, and problem solving strategies to prepare them to meet personal, career or further academic goals such as Intermediate Level Mathematics.

Students are expected to develop conceptual understanding as well as skills. They are expected to apply the mathematical concepts and skills learned to a variety of problem-solving situations. They need to be able to recognize and see the relationships between number patterns and mathematical concepts. They are to be encouraged to develop mental math and estimation skills in order to increase their confidence and competence in mathematics.

Calculators should be used to check calculations not perform them. In special circumstances, the use of a calculator may be permitted for calculations.

Core Learning Outcomes

A. Estimation

Students will demonstrate the ability to:

1. estimate quantities
2. estimate answers to questions and problems

B. Problem Solving

Students will demonstrate the ability to:

1. apply their skills and concepts to solve appropriate word problems
2. apply their mathematical skills and concepts to real life situations. Examples: handling money, banking, unit pricing and comparison shopping, interest/credit payments

C. Whole Number Operations

Students will demonstrate the ability to:

1. identify place value to millions
2. read and write number to millions
3. round numbers to the nearest 10s, 100s, 1 000s, 10 000s, 100 000s, and 1 000 000s
4. estimate and perform the operations of addition, subtraction, multiplication, and division
5. calculate the average of a group of numbers
6. recognize equalities and inequalities (<, =, >)
7. draw and use a number line from zero up
8. write and identify numbers expressed as multiples of 10
9. identify multiples and least common multiples

D. Operations with Decimals

Students will demonstrate the ability to:

1. understand decimals as part of a whole
2. identify place value to ten-thousandths
3. read and write decimal fractions to ten-thousandths
4. round off decimal numbers to a given place
5. list decimals in order of value
6. estimate and perform the operations of addition, subtraction, multiplication, and division using decimal numbers
7. calculate the average of a group of decimal numbers
8. compare decimal fractions to common fractions and change from one to the other
9. multiply and divide using multiples of 10

E. Operations with Common Fractions

Students will demonstrate the ability to:

1. understand fractions as part of a whole

2. estimate and perform the operations of addition, subtraction, multiplication, and division using like fractions, unlike fractions, and/or mixed numbers
3. understand equivalency and reduce fractions to simplest terms
4. list fractions and/or mixed numbers in order of value
5. calculate the average of a group of fractions
6. compare common fractions to decimal fractions and change from one to the other

F. Ratio, Proportion, and Percent

Students will demonstrate the ability to:

1. understand ratio as a simple form of the relationship between two numbers or quantities
2. understand proportion as a statement of equivalence between two ratios
3. determine if a proportion is true
4. understand percent as a fraction
5. compare percent to common fractions and decimal fractions and change from one form to another
6. express the relationship between two numbers as a percent
7. use percentage calculations to solve problems involving discount, increase, simple interest, commission and tax

G. Measurement

Students will demonstrate the ability to:

1. **Metrics**
   a) understand the metric system using the seven basic headings: kilo, hecta, deca, units, deci, centi, and milli
   b) understand metric units
   c) convert within the metric system
   d) use metric measuring instruments and read metric scales to measure length, weight, height, and capacity
   e) add, subtract, and find averages with metric measurements

2. **Temperature**
   a) add, subtract, and find averages with units of temperature

   Time
   a) use 12 hour AM/PM clock notation and be able to convert to and use the 24 hour System International clock notation
   b) add, subtract, and find averages with units of time

3. **Simple Geometric Shapes**
   a) identify basic geometric shapes
   b) calculate perimeter and area of squares and rectangles

H. Statistics and Data Analysis

Students will demonstrate the ability to:

1. read/obtain information from bar, line, and circle graphs, pictographs, and histograms

Non-Core Optional Learning Outcomes

Depending on institutional preference, these optional learning outcomes may be used as transitional or bridging learning outcomes for students planning to continue with Intermediate Math.

Optional Learning Outcomes: Whole Numbers

1. use order of operations to simplify expressions using whole numbers (2 + 3 x 5 = 17)
2. read and write numbers with exponents (powers)
3. read and write positive and negative numbers (integers)
4. recognize prime numbers up to 50
5. determine whether a number is prime or composite
6. use divisibility tests to determine factors
7. find the prime factorization of a composite number
8. identify the least common multiple of two or more numbers (LCM of 6 and 4 is 12)

Optional Learning Outcome: Decimals

1. use order of operations to simplify expressions using numbers with decimals

Optional Learning Outcome: Common Fractions

1. use order of operations to simplify expressions using fractions and mixed numbers

Optional Learning Outcome: Measurement

1. Simple Geometric Shapes
    a. Calculate volume of cubes and rectangular solids

Optional Learning Outcomes: Statistics

1. construct bar, line, and circle graph from data tables
2. calculate the mean, median and mode of a group of data

MATHEMATICS

Mathematics: Intermediate Level

Goal Statement

The goal of Intermediate Mathematics is to enable adult learners to acquire mathematical knowledge, skills, and strategies needed to enter appropriate higher level courses or to satisfy personal or career goals.

An Integrated Resource Package containing learning outcomes, suggested instructional and assessment strategies and suggested resources has been developed for use in Intermediate Level Mathematics.

Learning Outcomes

1. **Estimating Skills/Calculator Use**
   a) estimate answers to problems
   b) use a scientific calculator to calculate and solve problems involving adding, subtracting, multiplying and dividing whole numbers, fractions and decimals
   c) check that answers and solutions to problems are reasonable in the context of the given question

2. **Measurement**
   a) use the common metric units for temperature, length, area, volume/capacity, and mass
   b) use the common Imperial units for temperature, length, area, volume/capacity, and force
   c) convert between and within metric and Imperial units using tables and/or calculators
   d) take and read measurements with common measuring tools (e.g. thermometer, ruler, measuring tape, triple beam balance, bathroom scale, stop watch, vernier caliper, micrometer)
   e) describe and apply precision, accuracy and tolerance
   f) estimate in metric and Imperial units of measurement

3. **Perimeter, Area, and Volume**
   a) find perimeters of triangles, squares, rectangles, parallelograms, trapezoids, circles and composite figures by measuring and using formulas
   b) find areas of the above shapes by measuring and using formulas
   c) find the surface of cubes, rectangular solids, cylinders, cones, spheres, and composite solids by measuring and using formulas
   d) find the volumes of cubes, rectangular solids, cylinders, cones, spheres, and composite solids by measuring and using formulas
   e) distinguish between concepts of perimeter and area and their respective units

4. **Ratio and Proportion**
   a) read, write, interpret, and compare ratios
   b) read, write and identify proportions and use them to solve problems
   c) use ratio and proportion to interpret and make scale drawings
   d) use proportions to solve problems involving similar triangles

5. **Percent**
   a. use ratios and proportions to solve problems involving:
      i) finding % when part and whole are known
      ii) finding part when % and whole are known
      iii) finding whole when part and % are known

6. Geometry

a) name and draw points, lines, rays, segments, and angles
b) name and draw triangles, quadrilaterals, other common polygons and circles
c) construct with a compass and straight edge:
   i) the perpendicular bisector of a line segment
   ii) the bisector of an angle
   iii) a copy of an angle
   iv) parallel lines
   v) 30°, 45°, and 60° angles
d) classify and distinguish among acute, right, obtuse, straight, reflex, complementary and supplementary and vertically opposite angles
e) describe the angle relationships created when parallel lines are cut by a transversal
f) measure angles with a protractor
g) classify triangles according to sides and angles
h) identify similar and congruent figures

7. Statistics

a) conduct a survey to collect data
b) tabulate the data
c) calculate median, mean, mode, and range
d) graph the data
e) interpolate and extrapolate from the information provided

8. Signed (Rational) Numbers

a) add, subtract, multiply, and divide signed (rational) numbers
   i) demonstrate order of operations with signed (rational) numbers
   i) graph signed (rational) numbers on the number line
   iii) define absolute value

9. Algebra

a) explain the use of variables
b) evaluate algebraic expressions using substitution
c) combine like terms and remove parentheses
d) solve first degree equations in one variable
e) translate a problem into an equation
f) use equations to solve problems
g) solve simple formulas for one variable
h) use formulas to solve problems

PLUS:

Units 1 to 9 of the Learning Outcomes are the core units of the Intermediate Level Math course. To complete the course, students should choose one from A, or B, or C below.

Selection A prepares the student for Advanced Level Algebraic Math or Advanced Level Developmental Math. Selection B is intended for students exiting the ABE structure at the Intermediate Level. Section C is self-explanatory.

A 10. Powers, Roots, and Scientific Notation

a) read and write numbers expressed as powers
b) calculate powers with integral exponent
c) use the rules of exponents to calculate products and quotients of powers with the same base
d) use the rules of exponents to calculate the powers of powers
e) express numbers using scientific notation
f) convert between scientific and standard notation
g) read and write numbers expressed as roots
h) calculate using roots

Polynomials
a) add and subtract polynomials
b) multiply and divide polynomials by a monomial
c) remove common factors from polynomials

Trigonometry
a) name the parts of a right triangle
b) find the missing side of a right triangle using the Pythagorean Theorem
c) find the measure of an unknown side or angle of a right triangle using sine, cosine, or tangent ratios
d) solve problems using right angle trigonometry

Graphing
a) draw a Cartesian co-ordinate system
b) plot and name points in a Cartesian co-ordinate system
c) given an equation in two variables:
   i) determine if an ordered pair is a solution
   ii) find ordered pairs solutions
   iii) create a table of values
d) graph linear equations
e) determine the slope of a line given two points on the line
f) relate slope to grade and pitch
g) find x and y intercepts
h) solve problems using graphs of linear equations

B 10. Additional material pertaining to specific vocations

C 10. Additional material in preparation for the non-algebraic Mathematics options at the Advanced Level

Mathematics: Advanced Level - Algebraic Mathematics

Goal Statement

The goals for Advanced Algebraic Mathematics are (1) to provide students with sufficient mathematical knowledge for academic, career, and technical programs whose admission requirements include Math 11 equivalence and (2) to prepare students to enter Provincial Level mathematics courses.

Learning Outcomes

It is expected that learners will use a scientific calculator to evaluate complex expressions with emphasis on using special keys to perform a variety of functions. The use of a graphing calculator or other technology is optional.

1. Basic Algebraic Skills Review

Note: A review of the following basic algebraic skills is suggested but not required. It is expected that learners will be able to:
a) perform operations with real numbers including absolute value and exponential notation
b) simplify expressions using rules for order of operations and properties of exponents
c) translate common language into algebraic expressions
d) evaluate algebraic expressions by substitution
e) simplify algebraic expressions with nested parentheses

2. Solving Linear Equations and Inequalities

It is expected that learners will be able to:

a) solve first degree/linear equations in one variable
b) solve simple formulas for a given variable
c) solve and graph linear inequalities in one variable
d) write set-builder and/or interval notation for the solution set or graph of an inequality
e) use linear equations, formulas and linear inequalities to solve applied problems
f) find the union or intersection of two sets
g) solve and graph compound inequalities (conjunctions and disjunctions)
h) solve absolute value equations

3. Graphing, Relations, and Functions

It is expected that learners will be able to:

a) write linear equations in slope intercept form
b) graph linear equations and non-linear equations using a table of values
c) graph linear equations using the y-intercept and slope and using x- and y-intercepts
d) graph horizontal and vertical lines
e) find the slope of a line given two points on the line
f) find the equation of a line given graphic data: the slope and y-intercept, the slope and one point, or two points on the line
g) determine whether a pair of lines is parallel, perpendicular or neither
h) find the equation of a line parallel or perpendicular to a given line and through a given point
i) use the definition of function and the vertical-line test to distinguish between functions and non-functions
j) use and interpret function notation to evaluate functions for given x-values and find x-values for given function values
k) determine the domain and range of a function
l) graph linear functions and non-linear functions such as quadratic, cubic, square root, reciprocal, and absolute value functions
m) graph linear inequalities in two variables

Optional Outcomes:

n) graph exponential functions
o) analyze functions to determine line of symmetry, vertices, asymptotes, and intercepts
p) understand and demonstrate transformations in graphs resulting from the following changes in the defining equation: translation, reflection, dilation
q) use a graphing calculator or other appropriate technology to graph equations
r) identify an appropriate graph for a given relation
s) develop a model function from a given graph or set of data
t) perform linear regression using a graphing calculator to fit a linear function to data

4. Systems of Linear Equations and Inequalities

It is expected that learners will be able to:

a) solve systems of linear equations in two variables by graphing, substitution and elimination methods
b) determine if a system of equations will have no, one or an infinite number of solutions
c) use systems of equations to solve applied problems

Optional Outcomes:

d) solve systems of equations in three variables and applied problems using such systems
e) graph the solution for a system of linear inequalities in two variables
f) use a graphing calculator or other appropriate technology to solve systems of equations and inequalities

5. Polynomials and Polynomial Functions

It is expected that learners will be able to:

a) determine the degree of a polynomial
b) distinguish between monomials, binomials, trinomials, and other polynomials
c) add, subtract, multiply polynomials
d) divide polynomials by monomials
e) factor polynomials using an appropriate strategy or a combination of techniques: common factors, difference of squares, difference and sum of cubes, perfect square trinomials, trial/error, or grouping
f) solve polynomial equations using the principle of zero products
g) solve applied problems using polynomial equations/ functions

Optional Outcomes:

h) divide polynomials and binomials using long division
i) divide polynomials and binomials using synthetic division

6. Rational Expressions and Equations and Variation

It is expected that learners will be able to:

a) identify situations and find values for which a rational expression will be undefined
b) simplify rational expressions
c) add, subtract, multiply and divide rational expressions
d) solve rational equations and check
e) solve formulas involving rational expressions for a given variable
f) solve applied problems that can be modeled with rational equations
g) simplify complex fractions
h) express variations in the form of equations (direct, inverse, joint, combined)
i) solve problems involving direct, inverse, joint and combined variation

7. Radical Expressions and Equations

It is expected that learners will be able to:

a) write radicals as powers with rational exponents and vice versa
b) use rational exponents to simplify radical expressions
c) simplify, add, subtract, multiply and divide radical expressions (numeric or algebraic)
d) rationalize denominators in fractional expressions containing radicals (including the use of conjugates)
e) solve equations involving radical expressions or powers with rational exponents and check for extraneous roots
f) solve formulas involving powers and square roots for a given variable
g) solve applied problems which can be modeled by radical equations, and determine if solutions are reasonable given the context of the problem

Optional Outcomes:

h) identify imaginary and complex numbers and express them in standard form
i) add, subtract, multiply, and divide complex numbers

8. Quadratic Equations and Quadratic Functions

It is expected that learners will be able to:

a) solve quadratic equations by factoring, principle of square roots, completing the square and the quadratic formula
b) use the discriminant to identify the number and type of solutions of a quadratic equation
c) write a quadratic equation given its solutions
d) solve rational and radical equations reducible to a quadratic pattern and check that answers are reasonable

e) solve selected polynomial equations that can be factored simplifying to linear and/or quadratic factors
f) graph quadratic functions of the form $f(x) = a(x-h)^2 + k$ and demonstrate translations, reflections and stretching/shrinking resulting from changes in the function equation
g) find the vertex, line of symmetry, minimum or maximum values, x- and y-intercepts, domain and range, given the function $f(x) = a(x-h)^2 + k$
h) rewrite $f(x) = ax^2 + bx + c$ as $f(x) = a(x-h)^2 + k$ by completing the square
i) solve problems that can be modeled using quadratic equations including maximum and minimum problems

Optional Outcomes:

j) solve quadratic equations having complex number solutions
k) use a graphing calculator or other appropriate technology to graph and solve quadratic equations
l) solve quadratic inequalities by graphing
m) solve polynomial and rational inequalities algebraically

9. Trigonometry

It is expected that learners will be able to:

a) label the sides of a right triangle with respect to a given angle
b) determine sine, cosine, and tangent ratios of an angle in a right triangle using the side lengths
c) use a scientific calculator to find the trigonometric value for a given angle and to find an angle given its trigonometric value
d) solve right triangles and applied problems using the basic trigonometric ratios, the Pythagorean theorem, and sum of the angles (180°)
e) use the Law of Sines and the Law of Cosines to solve non-right (oblique) triangles and applied problems

Optional Outcomes:

f) use $A = 1/2bc\sin A$ to find the area of a triangle
g) determine the quadrant for positive and negative angles in standard position
h) identify coterminal angles
i) determine primary trigonometric function values for angles in standard position
j) identify reference angles
k) evaluate primary trigonometric functions for any angle in a variety of conditions
l) solve trigonometric equations involving the primary functions over a specific domain
m) use the trigonometric definitions to deduce unknown trigonometric values from given values

10. Optional Topics

Learners may wish to complete either A or B but these outcomes are not required.

A. Geometry

i) recall the properties of parallel lines, similar and congruent figures, polygons, angle relationships, angle measurements, and basic compass and straightedge construction

ii) demonstrate an understanding of the following properties of a circle:

- the perpendicular bisector of a chord passes through the centre of the circle
- the line joining the midpoint of a chord to the centre is perpendicular to the chord
- the line through the centre, perpendicular to a chord, bisects the chord
- central angles containing equal chords or arcs are equal (the converse is also true)
- inscribed angles containing the same or equal chords (on the same side of chord) or arcs are equal
- an inscribed angle equals half the central angle containing the same or equal chords (on the same side of chord) or arcs are equal
- an inscribed angle in a semicircle measures 90°
- opposite angles of a cyclic (inscribed) quadrilateral are supplementary
- a tangent is perpendicular to the radius at the point of contact (the converse is also true)
- tangents from an external point are equal

- the angle between a chord and tangent equals the inscribed angle of the opposite side of the chord (the converse is also true)

iii) demonstrate and clearly communicate deductive reasoning in the solution of applied problems

B. Data Analysis

i) explain the uses and misuses of statistics
ii) demonstrate an understanding of mean, median, mode, range, quartiles, percentiles, standard deviation, the normal curve, z scores, sampling error and confidence intervals
iii) graphically present data in the form of frequency tables, line graphs, bar graphs, and stem and leaf plots
iv) design and conduct statistics project, analyze the data, and communicate the outcomes

Mathematics: Advanced Level - Business/Technical Mathematics

Goal Statement

The goal of Advanced Business/Technical Mathematics is to provide the student with practical applications useful in future vocational training, careers, or personal life.

Learning Outcomes

1. Operations with Real Numbers

It is expected that learners will be able to:

a) add, subtract, multiply and divide rational numbers
b) evaluate powers with rational bases and integer exponents
c) demonstrate the order of operations with rational numbers
d) evaluate radicals and distinguish between exact answers and approximate answers
e) write numbers in scientific notation, convert from scientific notation to decimal notation, and multiply and divide numbers expressed in scientific notation
f) use a scientific calculator

2. First Degree Equations and Inequalities

It is expected that learners will be able to:

a) solve first degree equations, in one variable, including those involving parentheses
b) solve formulas for a given variable
c) solve first degree inequalities in one variable
d) solve practical problems using a first degree equation

3. Equations and their graphs

It is expected that learners will be able to:

a) plot points on a coordinate system
b) use number pairs to name points on the coordinate system
c) determine whether a given point is a solution to an equation in two variables
d) create an appropriate table of values and recognize the graph of the following relations:
   - $y = ax + b$ (linear)
   - $y = ax^2 + bx + c$ (quadratic)
   - $y = a/x$ (reciprocal)
   - $y = a(bx)^{1/2}$ (square root)
   - $y = a(b^x)$ (exponential) where a, b, and c are real numbers
e) given the graph of an equation, determine, where appropriate, the following:
   - x and y intercepts

- vertex
- slope

4. Systems of Equations

It is expected that learners will be able to:

a) solve systems of linear equations in two variables graphically and/or algebraically
b) graph linear inequalities in two variables
c) solve graphically, systems of linear inequalities
d) solve practical problems

Optional Learning Outcomes

Learners must complete a minimum of three of the following:

A. Consumer Mathematics

It is expected that learners will be able to:

a) solve consumer problems involving unit prices, wages earned in various situations, taxation problems, and exchange rates
b) reconcile financial statements
c) solve budget problems
d) solve investment and credit problems involving simple and compound interest

B. Finance

It is expected that learners will be able to:

a) solve problems involving compound interest
b) find the effective interest rate
c) solve annuity problems
d) solve loan and mortgage problems
e) determine the finance charge on a loan

C. Data Analysis

It is expected that learners will be able to:

a) determine the mean, median, mode and range from a set of data
b) interpret and/or construct frequency tables, broken line graphs, bar graphs, and stem-plots from a set of data
c) find quartiles and the percentile represented by a given data value
d) calculate the standard deviation of a set of data using appropriate technology
e) use Z scores to analyze normally distributed data
f) design a statistical experiment, collect the data, analyze and communicate the results

D. Measurement

It is expected that learners will be able to:

a) solve problems involving composite shapes and solids, with reference to perimeter, area, volume and surface area
b) calculate maximum and minimum values, using tolerances, for lengths, areas and volumes
c) enlarge or reduce a dimensional object according to a specified scale

E. Geometry

It is expected that learners will be able to:

a) use any of the following angle properties to determine an angle in a drawing:
   - vertically opposite angles
   - corresponding angles, alternate interior angles, and angles on the same side of the transversal
   - angles on a line
   - angles on a point

- complementary and supplementary angles
- angle sum of a triangle

b) classify triangles and quadrilaterals according to their sides and angles
c) draw triangles given:
   - three sides
   - two sides and an included angle
   - two angles and a side
d) draw quadrilaterals given various combinations of sides, angles, and diagonals

F. Trigonometry

It is expected that learners will be able to:

a) solve right triangles using one or more of
   i) the sine ratio
   ii) the cosine ratio
   iii) the tangent ratio
   iv) the Pythagorean theorem
   v) the angle sum property of triangles
b) solve triangles using the Law of Sines and/or the Law of Cosines (excluding the ambiguous case)

Mathematics: Advanced Level - Developmental Mathematics

Goal Statement

The goal of Advanced Developmental Mathematics is to provide students with sufficient algebra, geometry, and trigonometry to satisfy grade 11 prerequisites for some vocational, career, technical, and/or further academic programs.

Learning Outcomes

1. Operations with Real Numbers

It is expected that learners be able to:

a) write fractions as decimals and repeating decimals as fractions
b) add, subtract, multiply and divide rational numbers
c) evaluate powers with rational bases and integer exponents
d) demonstrate the order of operations with rational numbers
e) evaluate radicals with rational radicands and distinguish between exact answers and approximate answers
f) simplify, add, subtract, multiply and divide square roots

2. First Degree Equations and Inequalities

It is expected that learners will be able to:

a) solve first degree equations, in one variable, including those involving parentheses.
b) solve formulas for a given variable when other variables are known
c) solve formulas for a given variable
d) solve first degree inequalities in one variable
e) solve practical problems that can be solved using a first degree equation

3. Polynomials

It is expected that learners will be able to:

a) distinguish between monomials, binomials, trinomials and other polynomials (in one variable only)
b) apply the laws of exponents to variable expressions with integral exponents
c) evaluate polynomials by substitution

d) add, subtract, and multiply polynomials
e) factor polynomials by removing the largest common factor
f) factor binomials of the form $a^2x^2 - b^2y^2$ and trinomials of the form $x^2 + bx + c$
g) solve quadratic equations using the law of zero products
h) (optional) factor trinomials of the form $ax^2 + bx + c$

4. Rational Expressions

It is expected that learners will be able to:

a) simplify, by factoring, rational expressions consisting of polynomial numerators and either monomial, binomial, or trinomial denominators
b) determine values for which a rational expression is undefined
c) multiply and divide rational expressions
d) add and subtract rational expressions consisting of monomial and/or binomial denominators
e) solve simple rational equations and check solutions

5. Linear Equations

It is expected that learners will be able to:

a) graph a linear equation including the forms $x = a$ and $y = b$
b) given a linear equation or its graph, determine its
   i) slope
   i) x and y intercepts
c) determine the equation of a line, $y = mx + b$, given
   i) its graph
   ii) its slope and a point on the line
   iii) two points on the line

6. Systems of Linear Equations

It is expected that learners will be able to:

a) solve a system of first degree equations in two unknowns by graphing, substitution, and elimination methods
b) solve practical problems that can be solved using a system of equations

7. Radical Expressions

It is expected that learners will be able to:

a) simplify square roots with variable radicands
b) add, subtract, multiply and divide square roots with variable radicands
c) solve equations with one square root containing a polynomial radicand and check for extraneous solutions

8. Trigonometry

It is expected that learners will be able to:

a) solve right triangles using one or more of
   i) the sine ratio
   ii) the cosine ratio
   iii) the tangent ratio
   iv) the Pythagorean theorem
   v) the angle sum property of triangles
b) evaluate sine and cosine for angles from 0° to 180° (optional)
c) solve triangles using the Law of Cosines or the Law of Sines, excluding the ambiguous case (optional).

9. Optional Learning Outcomes

Students must complete one of the following four optional topics:

A. The Quadratic Equation
It is expected that students will be able to:

a) solve quadratic equations by factoring
b) solve equations of the form $x^2 + bx + c = 0$ by completing the square
c) solve quadratic equations by using the quadratic formula
d) graph $y = ax^2 + bx + c$ and determine its
   i) x and y intercepts
   ii) vertex
e) solve practical problems that can be solved using a quadratic equation.

B. Statistics
It is expected that learners will be able to:

a) determine the mean, median, mode, range and standard deviation of a set of data
b) represent data graphically using broken line graphs and bar graphs
c) understand how the normal curve can be used to describe a normally distributed population
d) calculate Z - scores and determine areas under the normal curve
e) use areas under the normal curve to analyze data in terms of the probability of various events.

C. Financial Mathematics
It is expected that students will be able to:

a) solve simple interest problems using the formula, i = prt, (for any variable)
b) solve compound interest problems for A or P using

$$A = P\left(1+\frac{r}{n}\right)^{nt}$$

c) find the effective interest rate using

$$E.R. = \left(1+\frac{r}{n}\right)^{n} - 1$$

d) solve annuity problems using

$$A = \frac{nP\left[\left(1+\frac{r}{n}\right)^{nt}-1\right]}{\frac{r}{n}}$$

(for A or P only)

e) find periodic payment using

$$P = \frac{A\left(\frac{r}{n}\right)}{1-\left(1+\frac{r}{n}\right)^{-nt}}$$

f) determine the finance charge on a loan
g) determine the interest rate on a loan using tables or appropriate technology

D. Geometry
It is expected that students will be able to:

a) classify triangles according to angles and sides
b) use the properties of triangles to determine the measure of sides and angles
c) determine the measure and/or congruence of angles given a transversal and two parallel lines
d) use the triangle congruence theorems in simple guided proofs

Mathematics: Provincial Level (Algebra and Trigonometry)

Goal Statement

ABE Provincial Level Mathematics is designed to prepare students with the algebra and trigonometry skills necessary for entry into academic, technical or vocational programs including those requiring an Algebra 12 prerequisite.

Learning Outcomes

1. **Functions and Relations**
   a) graph relations and functions and analyze their graphs with respect to
      - asymptotes
      - x-intercepts and y-intercepts
      - increasing and decreasing intervals
      - maximum and minimum values
      - symmetry with respect to a line or a point
   b) apply the vertical line test and horizontal line test
   c) translate functions vertically, horizontally, and via dilation or reflection
   d) classify functions, where appropriate, as
      - periodic
      - even or odd
      - piece-wise
      - continuous
   e) find or graph the inverse of a function
   f) evaluate composite functions

2. **Inequalities**
   a) solve one-variable absolute value equations and inequalities both algebraically and graphically on a number line
   b) graph linear and quadratic inequalities
   c) solve linear, quadratic, and rational inequalities
   d) use interval notation to describe the solution of an inequality
   e) solve and graph systems of linear inequalities

3. **Polynomial Functions**
   a) graph polynomial functions
   b) analyze the graphs of polynomial functions with regards to:
      - the degree of the function
      - the y-intercept
      - real roots and approximating real roots/zeros
      - the domain and range
   c) write complex numbers in standard form, a + bi
   d) determine the conjugate of a complex number
   e) add, subtract, multiply, or divide complex numbers
   f) divide polynomials using long or synthetic division
   g) demonstrate an understanding of the remainder and factor theorems
   h) list possible rational roots for polynomial equations with integral coefficients
   i) solve polynomial equations
   j) given the roots of a polynomial equation, or the zeros of a polynomial function, find its associated equation or function
   k) find the polynomial function given its zeros and a point on the function

4. Exponential and Logarithmic Functions

a) understand the inverse relationship between exponential and logarithmic functions
b) graph exponential and logarithmic functions
c) analyze the graphs of logarithmic and exponential functions in terms of:
   - x-intercepts or y-intercepts
   - increasing or decreasing
   - domain and range
d) convert between logarithmic and exponential forms
e) change logarithms in one base to another base
f) distinguish between common and natural logarithms
g) use the product rule, quotient rule, power rule to simplify expressions and solve logarithmic or exponential equations

5. Trigonometric Functions

a) identify special angles on a unit circle
b) convert radians to degrees and degrees to radians
c) determine the sin, cos, tan, csc, sec, and cot of an angle in standard position given a point on its terminal side
d) use the following identities to simplify trigonometric expressions, to solve trigonometric equations, or to find exact values:
   - reciprocal and quotient
   - pythagorean
   - sum and difference
   - double angle
   - half angle (optional)
e) graph the sine, cosine, and tangent function
f) from the equation or graph of a sine, cosine, or tangent function, determine the:
   - period
   - amplitude
   - domain and range
   - phase shift
g) calculate inverse trigonometric function values
h) solve trigonometric equations

6. Conic Sections

a) apply the distance formula and mid-point formula to solve problems
b) write the equations of circles, ellipses, hyperbolas, and parabolas in standard form
c) graph and analyze the graphs of these quadratic relations in terms of, where appropriate:
   - symmetry
   - centre and radius
   - asymptotes
   - directrix
   - vertices
   - foci
d) solve systems of linear/quadratic equations and quadratic/quadratic equations

7. Sequences and Series

a) distinguish between sequences and series, arithmetic sequences, arithmetic series, geometric sequences, geometric series, infinite geometric sequences, recursively defined sequences
b) describe a given sequence algebraically
c) use formulas to find terms, position of terms in sequence or series, arithmetic or geometric means, differences or ratios, sums of series, and sums of infinite series
d) use sigma notation to describe series
e) evaluate series designated in sigma notation

8. Problem Solving

a) use mathematics to solve real life, practical, technical, and theoretical problems
b) check that solutions are correct and reasonable

9. Optional Topics

Students must complete one of the following three optional topics:

A. Geometry

i) recall the properties of parallel lines, similar and congruent figures, polygons, angle relationships, angle measurement, basic compass and straightedge constructions, and circle properties
ii) make and justify conjectures regarding the relationships between parts of a geometric figure and its properties
iii) demonstrate the use of auxiliary lines in solving problems
iv) solve problems using a variety of circle properties and provide a deductive justification for the solution

B. Calculus

i) understand and find the limits of polynomial and rational expressions
ii) find the slope of a tangent line to a curve at a point on the curve
iii) use the definition of the derivative function to find the derivative of certain polynomials
iv) find derivatives using the:
- power rule
- sum rule
- product rule

v) use the derivative to graph and analyze functions in terms of:
- increasing/decreasing intervals
- minimum/maximum points
- concave up/concave down intervals
- inflection points

C. Systems of Equations and Inequalities

i) solve systems of linear equations and linear inequalities
ii) solve systems of linear equations in three variables
iii) distinguish between consistent and inconsistent systems and dependent and independent systems

Mathematics: Provincial Level (Calculus)

Goal Statement

ABE Provincial Level Calculus is designed to (1) provide students with the mathematical knowledge and skills needed for post-secondary academic and career programs and (2) ease the transition from Provincial level Mathematics to first year calculus at college/university.

1. Prelude to Calculus

It is expected that learners will be able to:

a. demonstrate an understanding of the concept of the limit and notation used in expressing the limit of a function
b. evaluate the limit of a function analytically, graphically and numerically
c. distinguish between the limit of a function as x approaches a and the value of the function at $x = a$.
d. demonstrate an understanding of the concept of one and two-sided limits.
e. evaluate limits at infinity
f. determine vertical and horizontal asymptotes using limits
g. determine limits of trigonometric functions
h. determine continuity of functions at a point $x = a$

i. determine discontinuities and removable discontinuities
j. determine continuity of polynomial, rational, and composite functions

Optional Outcomes:

k. determine continuity of trigonometric functions

2. The Derivative

It is expected that learners will be able to:

a. define and evaluate the derivative at $x = a$ as: $f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$

b. distinguish between continuity and differentiability of a function
c. determine the slope of a tangent line to a curve at a given point
d. calculate derivatives of elementary, rational and algebraic functions
e. distinguish between rate of change and instantaneous rate of change
f. apply differentiation rules to applied problems
g. use Chain Rule to compute derivatives of composite functions
h. solve rate of change application problems
i. determine local and global extrema values of a function
j. solve applied optimization (max/min) problems

Optional Outcomes:

k. calculate derivatives of trigonometric functions and their inverses
l. calculate derivatives of exponential and logarithmic functions
m. use logarithmic differentiation
n. calculate derivatives of functions defined implicitly
o. solve related rates problems
p. use Newton's Method

3. Applications of the Derivative

It is expected that learners will be able to:

a. determine critical numbers and inflection points of a function
b. compute differentials
c. use the First and Second Derivative Tests to sketch graphs of functions
d. use concavity and asymptotes to sketch graphs of functions

Optional Outcomes:

e. differentiate implicitly
f. understand and use the Mean Value Theorem
g. apply L'Hopital's Rule to study the behaviour of functions

4. Antiderivatives

It is expected that learners will be able to:

a. compute antiderivatives of linear combinations of functions
b. use antidifferentiation to solve rectilinear motion problems
c. use antidifferentiation to find the area under a curve
d. evaluate integrals using integral tables and substitutions

Optional Outcomes:

e. use antidifferentiation to find the area between two curves
f. compute Riemann sums
g. apply the Trapezoidal Rule
h. solve initial value problems

Optional Outcomes:

5. Differential Equations

It is expected that learners will be able to:

a. Derive a general solution of differential equations and find a particular solution satisfying initial conditions
b. Derive differential equations which explain mathematical models in the applied sciences

SCIENCES: GENERAL and APPLIED SCIENCE

Adult Education in the natural sciences recognizes the worth of adult experience and the desire to further understand the world around us, ourselves and our relationship to the natural world. General Science programs can best promote such understanding by offering courses which provide opportunities for students:

A. to develop critical thinking skills;
B. to increase their understanding of the concepts and principles of science;
C. to recognize the uses and limitations of scientific methods;
D. to acquire the skills and understand the processes and applications of science.

An applied science course will stress the practical applications of scientific concepts and skills, enabling adult learners to pursue further education, training, and/or employment opportunities.

General and Applied Science: Intermediate Level

Learning Outcomes

The learner will be able to:

- Understand and gain an appreciation for the methods by which scientific knowledge is obtained and organized, so that the learner can apply these methods of problem-solving to everyday life.
- Understand the fundamental concepts and terminology from the three primary branches of science: biology, chemistry, and physics. Some learners may also study other branches of science such as astronomy, geology, or meteorology. The exposure to these subject areas should show the variation, diversity and similarities between all branches of science as well as illustrate the effects of science in the learner's everyday life.
- Understand the methodology of a controlled experiment, and the necessity of performing experiments in order to acquire scientific knowledge.

The course is not limited to units in biology, chemistry and physics, but may be expanded to suit individual or local needs. No time allotments have been suggested, but it is assumed that the average completion time for Intermediate Science will be similar to that for the same level subjects in English and Mathematics.

Generic Topic Outline

At least five units are required, but additional units may be added as desired. The following are outlines of content of suitable units.

A. Introductory Science

- Define science and its limits
- Explain and use the scientific method
- Demonstrate the skills and techniques of science. (experimental design, use of tables, graphs and calculations)
- Use appropriate instruments to make measurements
- Solve problems using SI units
- Relate Science and Technology to our modern world

B. Human Biology

Explain the importance of and inter-dependence between biological systems as covered in one of the following units:

1. Nutrition
   - Describe the energy needs of the body
   - Identify nutrients needed by the body
   - Plan a healthy diet
   - Identify special foods and diets
   - Describe worldwide food needs

2. Human Biology
   - Identify the parts of the skeletal and muscular systems
   - Explain the function of blood and trace its circulation
   - Identify the parts and functions of the respiratory system
   - Describe the digestive system and the function of the digestive organs
   - Identify the parts of the nervous system

   (This topic may be substituted for one of the above: identify and explain the reproductive system)

3. The Cell
   - Identify the parts of the microscope and demonstrate its use.
   - Explain the theory, structure and function of the cell
   - Describe cellular processes
   - Define cell division
   - Diagram cell organization

C. Chemistry

- To acquire a general understanding of the structure of matter and the organization of the Periodic Table.
- Describe the different states of matter
- Describe how matter is organized into elements, compounds and mixtures.
- Identify the subatomic components of atoms
- Use the periodic table to determine the properties of elements and their characteristic behaviours
- Describe the organization of the periodic table
- Categorize compounds as ionic or covalent
- Name a simple compounds from its formula
- Write the formula for a simple compound

D. Physics

Do one of the following:

1. Machines
   - Define force and work
   - Apply the concept of work to simple machines to solve quantitative problems
   - Solve problems involving simple machines, levers, inclined planes, wedges, pulleys, wheels and axles
   - Solve problems involving other machines: gears, pulley systems, hydraulic systems

2. Energy
   - Define basic concepts: force, work, energy, conservation law, power
   - Distinguish between forms of energy
   - Solve quantitative problems involving thermal energy

- Solve quantitative problems involving electrical energy
- Solve quantitative problems involving conservation of energy

3. Electrical Circuits
   - Distinguish between AC and DC circuits
   - Choose and use appropriate instruments to measure voltage and current
   - Solve quantitative problems involving Ohm's Law
   - Solve quantitative problems involving circuits
   - Explain the use of switches, fuses, and other components of an electrical circuit
   - Demonstrate appropriate safety precautions

4. Motion in one dimension
   - Solve quantitative problems involving velocity
   - Solve quantitative problems involving acceleration

E. The fifth unit

May be chosen from the above or from other topics such as disease, drugs, chemical reactions and equations, weather, astronomy, earth science, environmental issues, etc.

All Intermediate General Science courses must include experiment and/or field time of at least 10% of the total time. Experiment and/or field exercises should be relevant to the selected units and emphasize those techniques and skills appropriate for this level of course.

General and Applied Science: Advanced Level

Adult learners will demonstrate their knowledge, skill and understanding of science at an Advanced Level. (For outcomes at an Advanced level see the relevant outcomes for specific sciences in this guide.) This material may be organized around a central unifying theme.

General and Applied Science: Provincial Level

Adult learners will demonstrate their knowledge, skill and understanding of science at a Provincial Level. Courses will include provincial level material from one or more of Biology, Chemistry, Physics or Earth Sciences. (For outcomes at a Provincial level in these sciences see the relevant outcomes in this guide.) This material may be organized around a central unifying theme.

SCIENCES: BIOLOGY

Goal Statement

Biology is the study of living organisms and life processes. In the study of biology, adult learners can use their life experiences to expand their knowledge of both the macro and micro environments, their appreciation of the living world's natural order and their role in it.

The Biology Advanced Level Integrated Resource Package developed by the Centre for Curriculum, Transfer and Technology is suggested as an excellent resource for this course.

Learning Outcomes

Biology learners will:

- Obtain the prerequisite body of knowledge and skills that will provide a basis for further academic and career/ vocational education and training
- Appreciate the qualities, the quantities and the variety of living organisms, and understand their impact on human lives, society, and the environment
- Use scientific method to evaluate information and to analyse experiences
- Communicate science effectively
- Work independently and also as part of a team, where appropriate
- Read and evaluate popular publications about issues in the life sciences with increased understanding and interest
- Actively gain the knowledge, skills, and attitudes that provide the basis for sound and ethical problem solving and decision making
- Make informed and responsible decisions about themselves, their homes, workplaces, and the global community

Biology: Advanced Level

Core Topics

A. Apply Scientific Method

B. Describe major function and structures of cells and related chemistry

C. Diversity of Life

- Identify major taxonomic groups
- Demonstrate an understanding of classification
- For viruses, monera, protists, fungi, major divisions of plants, major invertebrate phyla and major vertebrate phyla it is expected that students are able to do the following:
  - Identify structure
  - Identify distinguishing characteristics
  - Describe life processes
  - Relate adaptation to their role in the ecosystem

D. Ecology

- Describe energy transfer for food chains, food webs, energy pyramids and biogeochemical materials cycles
- Define communities and population & explain their distribution, dynamic and changes over time
- Define biosphere and characterize aquatic and terrestrial biomes using British Columbia examples
- Identify ecological problems and evaluate possible solutions

E. Evolution

- Cite evidence for evolution
- Compare past and present theories of evolution
- Discuss the origin of life

F. Options

The following topics may be useful to students going off to further biology courses:

- Resource management
- Applied ecology
- Ecological methods
- Behaviour
- Genetics
- Parasitology
- Local topics

G. Laboratory Skills

- Demonstrate microscope skills
- Collect and record data in an effective manner
- Conduct lab procedures safely and ethically
- Interpret data collected

All Advanced Biology courses must include seven laboratory and/or field work activities.

Biology: Provincial Level

Human Biology:

Core Topics

A. Cell Biology

- Describe major structures and functions
- Explain the role of important molecules: water, carbohydrates, proteins, lipids, nucleic acids, etc.
- Describe the basic mechanism of protein synthesis.
- Explain the role of enzymes and their importance to cellular processes.
- Explain and compare mitosis and meiosis.

B. Bioenergetics

- Outline the processes of photosynthesis and cellular respiration and their relationship to one another.

C. Genetics

- Explain principles of inheritance
- Solve problems in Mendellian Genetics
- Explain role of DNA

D. Human Biology

- Apply concept of homeostasis
- Demonstrate knowledge of integration of tissues, organs and systems
- Identify structures and describe functions of eight of the following:
  - skeleto-muscular system
  - digestive system
  - circulatory system
  - blood and immunity
  - respiratory system

- endocrine system
- nervous and sensory system
- excretory system
- reproductive system
- human development

Options

The following topics may be useful to students taking further biology courses:

- Cancer
- Nutrition
- Plant form and function
- Local topics

Laboratory Skills

- Demonstrate microscope skills
- Collect and record data in an effective manner
- Conduct lab procedures safely and ethically
- Interpret data collected

All Provincial Biology courses must include seven laboratory and/or field work activities.

Biology: Provincial Level

Ecology:

Core Topics

A. Cell Biology

- Describe major structures and functions
- Explain the role of important molecules: water, carbohydrates, proteins, lipids, nucleic acids, etc.
- Describe the basic mechanism of protein synthesis.
- Explain the role of enzymes and their importance to cellular processes.
- Explain and compare mitosis and meiosis.

B. Bioenergetics

- Outline the processes of photosynthesis and cellular respiration and their relationship to one another.

C. Plant anatomy and physiology

- Describe the major plant tissue types and their function
- Describe the function of plant control and reproductive systems

D. Animal Anatomy and Physiology

- Apply concept of homeostasis
- Demonstrate knowledge of integration of tissues, organs and systems
- Identify structures and describe the functions of the following systems:
  - Respiratory
  - Circulatory
  - Muscular, Skeletal
  - Reproductive
  - Nervous and Sensory

E. Ecology

- Use fundamentals of classification to identify organisms.

- Explain how plant and animal diversity enable them to adapt to their environments.
- Explain the principles of population dynamics: population growth, density, distribution, and regularity.
- Explain ecosystem dynamics: energy flow, nutrient cycling.
- Explain community dynamics including: community structure, diversity, and interspecific relationships
- Demonstrate knowledge of the challenges to biome integrity

Laboratory Skills

- Demonstrate microscope skills
- Collect and record data in an effective manner
- Conduct lab procedures safely and ethically
- Interpret data collected

All Provincial Biology courses must include seven laboratory and/or field work activities.

SCIENCES: CHEMISTRY

Goal Statement

Chemistry is an essential part of the everyday world. A knowledge and understanding of its principles is the base on which applications in health, the environment, and industrial development are founded. The chemistry courses will foster understanding of science as a vital part of a sustainable society and provide a basis for further academic and career/vocational training.

An Integrated Resource Package containing learning outcomes, suggested instructional and assessment strategies and suggested resources has been developed for use in Advanced Level Chemistry.

Learning Outcomes

Chemistry learners will:

- Obtain the prerequisite body of knowledge and skills that will provide a basis for further academic and career/ vocational training
- Appreciate and apply the chemistry of everyday life
- Apply the scientific method to investigations of all phenomena
- Communicate effectively, particularly to the scientific community, using the language of chemistry
- Carry out all duties in an ethical, professional manner, including the collection and treatment of data
- Work effectively as a member of a team
- Handle equipment and chemicals in a safe and effective manner with regard to their own safety and the safety of others

Chemistry: Advanced Level

Core Topics

A. Safety

- List the safety and protective equipment available in the laboratory
- Demonstrate the appropriate procedures or techniques for dealing with particular hazards and hazardous materials

B. Measurement

- Demonstrate the concepts of precision and accuracy and how they differ, utilizing significant figures
- Perform calculations using scientific notation
- Perform conversions within the SI system

C. Properties of Substances

- Classify substances as organic or inorganic
- Differentiate between the phases of matter
- Identify chemical or physical properties of substances
- Describe Dalton's Atomic Theory and the Law of Constant Composition
- Describe the basic laws of gases

D. Periodic Trends

- Use the periodic table to determine atomic composition of isotopes
- Use the periodic table to predict electron arrangement of chemical families in order to predict trends in ion charge, reactivity, ionization energy, electronegativity, atomic radii, and ionic radii

E. Atomic Structure

- Analyse the historical development of atomic theory
- Describe the Bohr and Wave Mechanical model of the atom and cite evidence for these models including absorption and emission spectra and their use in modern technology

F. Mole Concept

- Define a mole and its significance
- Perform calculations including molar and formula mass, mole to mass conversions, and percent composition by mass of compounds

G. Bonding

- Define covalent and ionic bonding
- Construct the formulas of compounds
- Use electronegativity to predict bond type

H. Inorganic Nomenclature

- Write names for compounds given the formulae and write formulae for compounds given the names for the following types of compounds:
  - Covalent compounds
  - Ionic compounds
  - Compounds containing polyatomic ions
  - Compounds containing transition metals
  - Acids

I. Chemical Reactions

- Balance equations
- Classify and predict single and double replacement reactions, combustion reactions, and acid-base neutralizations
- Classify synthesis, decomposition, exothermic and endothermic reactions
- Perform stoichiometric calculations including mass-to-mass, limiting reagent, and percent yield

J. Solutions

- Predict solubility and conductivity of polar and non-polar compounds
- Define Arrhenius acids and bases
- Relate the pH scale to acids and bases
- Perform calculations involving dilutions
- Perform stiochiometric calculations involving solutions including titrations

Laboratories

A minimum of eight labs are to be completed, covering the core concepts

Chemistry: Provincial Level

Core Topics

A. Reaction Kinetics

- Describe the collision model of chemical reactions
- Describe activation energy, endo and exothermic reactions using potential and kinetic energy diagrams
- Describe the factors that effect reaction rate including temperature, concentration, surface area, and catalysts

B. Equilibrium

- Explain the nature of chemical equilibrium using examples

- Apply Le Chatelier's Principle
- Calculate equilibrium constants of homogenous and heterogeneous systems and equilibrium concentrations from equilibrium constants

C. Solubility of Ionic Substances
- Use solubility rules to predict precipitates
- Calculate K_{sp} from solubilities and solubilities from K_{sp}

D. Acid-Base
- Describe Bronsted-Lowry acids and bases including acid-bases pairs
- Predict the relative strengths of acids
- Calculate $[H^+]$, $[OH^-]$, pH, and pOH from any one known
- Calculate pH from K_a
- Describe the characteristics of a buffer system

E. Oxidation-Reduction
- Assign oxidation states to elements in compounds
- Identify oxidizing and reducing agents
- Balance redox equations
- Describe the components of electrochemical and electrolytic cells
- Predict the voltage, E_o, of electrochemical and electrolytic cells
- Describe the applications of oxidation-reduction to everyday and industrial processes

F. Gas Laws
- Use the appropriate units and conversions for pressure, volume and temperature
- Apply Boyle's, Charles', Guy-Lussac's and the Combined Gas Laws to predict pressure, volume, or temperature
- Describe an ideal gas and make calculations using the Ideal Gas Law

G. Organic Chemistry
- Draw structural formulae of hydrocarbons and substituted hydrocarbons and name them using IUPAC (International Union of Pure and Applied Chemists)
- Identify structural isomers
- Categorize organic compounds based on their functional groups
- Describe applications of organic chemistry

Options
Options may include: nuclear chemistry, biochemistry, advanced work on bonding, or industrial applications

Laboratories
A minimum of eight labs are to be completed, covering the core concepts

SCIENCES: PHYSICS

Goal Statement

Since Physics is the study of the fundamental laws of nature, it is relevant to a wide range of human concerns and achievements. Technological change, which stems from an understanding of physics, is often accompanied by extensive social change, to which each of us must adapt. Moreover, the concepts of physics have profound effects on the way we think about the universe, our societies, our work and ourselves. At the most immediate level, physics is essential to academic studies and career training in a wide range of fields.

Advanced and Provincial Level Physics should therefore aim to foster and develop, as part of general education, a scientific way of thinking and a basic knowledge of scientific ideas. The courses should also nurture an understanding of science as an integral part of society's culture and provide groundwork for further academic, career, or vocational training.

An Integrated Resource Package containing learning outcomes, suggested instructional and assessment strategies and suggested resources has been developed for use in Advanced Level Physics.

Learning Outcomes

Physics learners will:

- Obtain the pre-requisite body of knowledge and skills that will provide a basis for further academic and career/ vocational training
- Use scientific processes in an ethical and appropriate manner
- Appreciate and apply the physics of everyday phenomena
- Link physics to their own practical experience
- Work effectively as a member of a team in a responsible and respectful manner
- Handle equipment and lab materials in a responsible and effective manner with regard to their own safety and the safety of others
- Apply scientific concepts, recognizing their strengths and weaknesses, to broader societal issues
- Critically evaluate controversial points of view around issues where science offers information or perspective
- Develop critical thinking skills

Physics: Advanced Level

Core topics

A. Measurement

- solve problems involving SI units
- maintain the correct number of significant numbers in calculations
- use uncertainties in measurements

B. Kinematics

- solve and analyze kinematics in one dimension
- construct and use distance versus time curves
- construct and use velocity versus time curves
- solve problems involving uniform acceleration

C. Dynamics

- solve and analyze dynamics in one dimension
- apply Newton's laws of motion in one dimension

- solve problems involving:
  - friction forces
  - gravity forces
  - elastic forces
- solve and analyze problems in kinetic and potential energy
- solve and analyze problems in energy conservation
- solve problems involving work and power

D. Electricity
- solve and analyze problems involving Coulomb's law
- solve and analyze problems involving Ohm's law
- define electric potential difference
- solve simple D.C. resistance problems involving series and parallel circuits

E. Heat
- define temperature, heat energy and specific heat capacity
- solve and analyze problems in heat energy
- demonstrate an understanding of the different mechanisms of heat transfer

Options:
The following topics may be useful to students going on to further physics courses:
- wave phenomena applied to light and sound
- atomic and nuclear physics

Laboratories:
There should be one laboratory from each topic and a minimum of seven laboratories. Laboratory skills must include:
- collecting data through observation
- constructing graphs
- drawing conclusions from observations and data
- calculating experimental error

Physics: Provincial Level

Core topics

A. Kinematics
- solve and analyze kinematics in two dimensions

B. Dynamics
- solve and analyze dynamics in two dimensions
  - two-dimensional equilibrium
  - momentum in two dimensions
  - energy conservation
  - circular motion

C. Electrostatics
- do calculations with electric field strength
- do calculations with electric potential energy

D. Electromagnetism
- do problems involving magnetic forces
- analyze and solve problems involving magnetic induction

E. Vibrations and Waves

- define wave length, frequency and period
- analyze and solve problems involving wave phenomena
- describe various wave phenomena and the conditions which produce them
- construct ray diagrams for mirrors and simple lenses

Options:

The following topics may be useful to students going on to further physics courses:

- AC circuits
- relativity
- quantum mechanics
- electronics
- fluids

Laboratories:

There should be one laboratory from each topic and a minimum of seven laboratories.

SOCIAL SCIENCE

General Statement

The ABE Social Science curriculum provides an analytic and critical approach to social science topics. The overall purpose is to encourage learners to explore society from many perspectives. ABE Social Science provides learners with a variety of conceptual tools to analyze and assess these perspectives. It allows learners to assemble these perspectives and articulate a point of view. Finally, it enables learners to revise their points of view through experiencing the different values and cultures of other people.

An integrated resource package containing learning outcomes, instructional and assessment strategies and resources has been developed for use in Social Science instruction.

Goal Statement

The goals of the curriculum are broadly applicable to all levels, Fundamental through Provincial. Learners will:

1. Become aware of some past and present forces shaping society
2. Experience different perspectives on these shaping forces: cultural, economic, gender, geographic, historic, legal, political, psychological, racial, spiritual, etc.
3. Analyze and assess these issue perspectives to build a point of view
4. Revise their point of view through experiencing other social and cultural perspectives

Outcomes

Participants in **all** Social Science courses should be encouraged to acquire a range of skills and abilities. The skills and abilities listed here apply in general to **all** levels, Fundamental through Provincial, with the recognition that particular outcomes may be more or less applicable at each level. In addition, there is a second list of outcomes that are required of all Provincial level courses and students.

It is expected that Social Science students will:

1. Identify sources of information from:
   - Libraries by using resource books, texts and periodicals
   - Media sources by using computers, video and audio materials
   - Direct sources such as interviews, surveys and observation

2. Extract, summarize and report information from a variety of media, such as:
   - Regional, national and global maps
   - Details of latitude and longitude, scale and distance
   - Contour and relief maps
   - Artifacts and documents
   - Historical and contemporary media, art, literature, cartoons, etc.
   - Electronic media: Internet resources, software

3. Learn to organize information into a range of formats, such as:
   - Notes, outlines, and reviews
   - Maps, graphs, and tables
   - Research summaries

4. Analyze information in a variety of ways by:
   - Finding main ideas
   - Asking evocative questions
   - Comparing main ideas with other material and sources of information

5. Demonstrate the ability to communicate through a variety of methods by:
   - Writing summaries
   - Preparing short essays and papers
   - Utilizing a variety of presentation methods (e.g. graphs, tables, tapes, drawings, posters, computer-based presentations, etc.)

6. Clarify and discuss personal values with respect to social issues.

7. Identify avenues for democratic participation.

8. Channel and clarify personal values and positions in society.

9. Recognize and respect the right of others to hold personal values and positions.

10. Establish hypotheses concerning values and bias.

11. Distinguish between fact and opinion.

12. Display skills at handling content. Students should be conversant with the subject matter of the course; specifically they should:
    - Demonstrate knowledge of the materials
    - Demonstrate the ability to comment on and question the material
    - Identify statements that reflect consistent or contradictory views
    - Demonstrate the ability to generate inferences from many sources

Provincial Outcomes

In addition to the generic outcomes for all Social Science students, Provincial level students are expected to be able to:

1. Establish and test hypotheses concerning values
2. Extrapolate a common theme from disparate information
3. Produce research using MLA/APA standards
4. Write essays that demonstrate a synthesis of complex information
5. Interpret and evaluate information from artifacts, oral tradition, original documents and other primary sources
6. Generate a personal point of view about some aspect of society based on their research
7. Create or apply strategies to compare aspects of society

Social Science: Intermediate Level

Generic Topic Outline

- Canadian History
- Cultural Diversity
- Canadian Government, Law and Citizenship
- Economics and People

A. Canadian History

Pre-contact:

- Indigenous People
- Explorers

Post-contact:

1. French and British Foundations in Canada
   - establishments of New France
   - expansion of the fur trade
   - struggle for control

2. Development of the British North American Colonies
   - opening of the West
   - conflict with the Americans
   - advancement of self government - Confederation of Canada

3. Creating a New Nation
   - transcontinental expansion
   - struggle for national unity
   - growth of Canadian autonomy

4. Canada at war
   - World War I
   - Inter-war period
   - World War II

5. Postwar Canada
   - political change
   - social change
   - economic change

B. Cultural Diversity

1. Idea of Culture

2. Aboriginal Culture
   - history and its effects on aboriginal peoples
   - define aboriginal culture
   - reserves - origins and impact
   - government policies and their effect on aboriginal peoples
   - contemporary issues:
     a) aboriginal land claims
     b) aboriginal self-government

3. Immigration - Past and Present
   - settlement patterns
   - economic and other consequences

4. Examine the concept of diversity
   - problems and accomplishments of different ethnic groups
   - cultural differences - regional and national
   - bilingualism
   - aspects of multiculturalism and diversity with focus on concepts and issues such as:
     a) racism
     b) role of women
     c) assimilation/integration/cultural mosaic

C. Canadian Government, Law and Citizenship

1. Government
   - idea of Government
     a) purposes
     b) political ideologies
   - Canada's Constitution
     a) evolution
     b) division of powers
     c) Charter of Rights
   - levels of Government
     a) Federal
        i) Executive, Legislative and Judicial branches
        ii) political parties
        iii) electoral process
        iv) financial responsibilities
        v) service/program responsibilities
     b) Provincial - same subdivisions as for Federal Government
     c) Territorial - same subdivisions as for Federal Government
     d) Municipal - same subdivisions as for Federal Government

2. Law
   - Criminal
   - Civil
   - Court System
     a) Federal
     b) Provincial
     c) Municipal

3. Citizenship
   - idea of Citizenship
   - roles, rights and responsibilities

D. Economics and People

1. The Idea of Economics
   - historical overview
   - factors in economics such as:
     a) capital
     b) labour
     c) technology
     d) transport
     e) resources
     f) energy
     g) management
     h) social-political factors that affect development (isms and public policy)
     i) supply and demands
     j) cycles
     k) family and individual

2. Employment/Unemployment
   - application of economic factors listed above
   - job search and understanding of the labour market

3. Community-based and Local Economic Development
   - small business & entrepreneurship

- co-ops and credit unions
- community-based and local non-traditional economics (barter, worker co-ops, etc.)

4. Regional Unit
   - application of economic factors listed above to local economies.

5. Consumer Rights and Responsibilities

6. Issues in Economics such as:
   a) who plans the economy?
   b) taxation and government spending
   c) free trade
   d) conserver society

Social Science: Advanced Level

Generic Topic Outline

A. People and their Environment
   - energy use and abuse
   - food production
   - quality of life
   - industrialization

B. Global Citizenship
   - geopolitics
   - migrations
   - population studies
   - energy use and abuse

C. Levels of Economic Development
   - food production
   - energy use and abuse
   - industrialization
   - economic systems

D. Locally Developed Unit
   - anthropology
   - sociology
   - history
   - geography
   - psychology

Psychology - Generic Topic Outline

A. Relationships
B. Human Development
C. Culture
D. Self Esteem
E. Group Dynamics
F. Conflict Resolution
G. Decision Making/Problem Solving
H. Assertiveness
I. Fields of Psychology

J. Communication
K. Perception
L. Health and Wellness
M. Definitions

The above list of topics is intended to reflect an applied approach to psychology at the advanced level. A list of applied interest areas for each topic will be developed by the working committee to further expand psychology at the advanced level.

Social Science: Provincial Level

Geography - Generic Topic Outline

The focus is on Physical and Human Geography.

A. Meteorology & Climatology
- earth and sun relationships
- atmosphere, structure and composition
- insolation and temperature
- atmospheric pressure and winds
- moisture, humidity and precipitation
- mapping weather

B. Geomorphology
- rocks
- tectonic forces
- gradational forces
- weathering processes
- landforms
- geophysical hazards

C. Cartography
- types of maps
- scale
- grids

D. Demography
- distribution and density
- population growth and control
- population and food consumption
- migration

E. Resources
- renewable/non renewable
- energy types

History - Generic Topic Outline

The focus is on 20th Century World History.

A. The World at the Beginning of the Century
- nationalism and imperialism
- causes and course of the war
- Russian War and Revolution

B. The World after World War I
- Treaty of Versailles and League of Nations
- Germany and war reparations
- Japanese imperialism
- Europe and North America in the 20s

C. The World in the 30s: Depression & Dictatorship
- the Great Depression - causes & consequences
- the Rise of Hitler's Germany
- Roosevelt and the New Deal
- Stalin's rise to power and modernization of Russia

D. World War II
- origins
- causes
- events

E. The Cold War and Reconstruction
- two Germanys
- the Iron Curtain
- confrontation or coexistence
- Western Europe: towards New Community
- emerging Asian economies

F. The Third World and China
- Mao's China 1949-76
- end of European empires and the advent of new imperialism
- the Middle East

G. Contemporary Issues

Economics - Generic Topic Outline

The focus is on providing an introduction to some of the basic concepts of economics.

A. Introduction
- origins and history of economics
- terminology
- definitions of economic terms
- scarcity
- modern economic systems and their evolution - communism, socialism, capitalism, fascism

B. Production
- explanation of production
- factors of production (land, labour, capital, entrepreneur)
- organizations of production (single ownership, partnership, corporation, state ownership, cooperatives)
- large-scale production - advantages and disadvantages
- monopoly - an assessment of its various forms (pool, holding company, merger) and its growth

C. Exchange
- the price system
- money
- credit and banking
- marketing and transportation

- international trade and foreign exchange

D. Distribution
- elements of distribution, such as:
    a. national income
    b. wage determination
    c. interest and savings
    d. interest rates
    e. profits
- the Labour Movement (history and development)
- labour problems
- labour legislation
    a. collective bargaining
    b. contracts
    c. the right to strike
    d. strike alternatives, labour laws

E. Consumption of Goods
- principles of consumption
- saving and investing

F. The Role of Government
- federal, provincial and municipal expenditures
- increasing public expenditures
    a. social services
    b. national defense
    c. crown corporations
    d. debts - national and provincial
- sources of government revenue
    a. advantages and disadvantages of various types of taxation
    b. federal taxation
    c. provincial taxation
    d. municipal taxation

G. Economics and Business
- the balance sheet (assets and liabilities)
- costs and cost control
- reasons for business failure

H. Current Events
- domestic issues (issues of local and national concern)
- international issues

Psychology - Generic Topic Outline

The focus is on providing an introduction to some of the basic concepts and applications in psychology.

A. Introduction
- Origins and history of psychology
- Terminology
- Methodology

B. Theoretical Approaches
- Psychoanalytic
- Behavioural/cognitive

- Human potential
- Others

C. Developmental Psychology
- Stages of life
- Sex and gender

D. Learning
- Definitions
- Theories
- Learning styles
- Thinking

E. Communication
- Theory
- Non-verbal
- Aggressive/assertion
- Conflict
- Listening skills
- Gender differences

F. Stress and Wellness
- Definitions
- Theories
- Strategies
- Personality

G. Other Possible Topics
- Abnormal psychology
- Physiology
- Ethics
- Motivation
- etc.

H. Applications
- Addictions
- Family
- Parenting
- Anger management
- Personal development
- Abuse

Directions to Future Submitters of Courses Under the Social Science Section

Please submit course proposals to the chair of the committee at least one month prior to the annual meeting. If this is not possible, contact the chair. Please ensure that the course proposals reflect the goal statements, competencies and generic skills as outlined in the Articulation Handbook.

COMMITTEE MEMBERSHIP

STEERING COMMITTEE

The Steering Committee is made up of institutional representatives. Chairs of the articulation working sub-committees also attend. Where two names are listed for an institution, the first person named is the institutional representative. The latter exercises the institutional vote.

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HIGHLIGHTS of the History of Adult Basic Education in British Columbia

Since the early 1960s, British Columbians have had a rich history of Adult Basic Education (ABE) courses and programs. These courses have been and continue to be offered both in the Post-Secondary Education (PSE) system and through the Ministry of Education (MEd).[1] In both systems, ABE programs are offered in a variety of settings and with a variety of delivery methods. In the K-12 system (MEd), almost every school district offers ABE programs where adult learners may finish the courses necessary to receive their regular Dogwood diploma, or may complete a reduced number of credits, opt out of provincial exams, and work toward their British Columbia Adult Graduation Diploma (BCAGD).

In the PSE system, ABE programs are offered through 5 university colleges, 11 colleges, 2 institutes and the Open Learning Agency in a variety of formats ranging from semester classes to self-paced individualized instruction, including distance education and community outreach with tutoring assistance. Programs are fully articulated, allowing for course transferability around the province. Adult learners may choose to take courses as prerequisites for other programs in PSE or work toward their BCAGD.

The PSE's ABE history begins in 1960 when the federal government expands its vocational programs by passing the *Technical and Vocational Training Assistance Act*. Soon thereafter, in 1963, the province's *Public Schools Act* is amended to provide for the establishment of "regional colleges." By 1967, recognizing that most people in need of vocational training did not have the basic academic skills needed to participate in vocational programs, the federal government introduces its *Adult Occupational Training Act*; therefore, it launched the program *Basic Training for Skills Development* (BTSD) intended to provide upgrading for grades 0-12. In 1973, the shorter *Basic Job Readiness Training* (BJRT) program is introduced focusing on life skills, job search techniques and work experience.

By September 1976, a provincial discussion paper, *Helping to Develop a Provincial Continuing and Community Education Policy* made recommendations to MEd on continuing and community education policy. By December of that year, a Report of *the Committee on Continuing and Community Education in BC* was released which designated ABE as a "high priority special program." In 1977, the government passed the new comprehensive College and Institute Act. After a survey of current provisions for ABE, the government releases a discussion paper in 1979 and invites comments from the field. Also in 1979, the first annual meeting of the Adult Basic Education Association of BC (ABEABC) is held. This new organization, the first of its type in Canada, is comprised of instructors and community members interested in ABE and literacy. It aims to help ensure that ABE programs continue to receive the support they need and to help build the quality of the programming available.

In 1982, the government report *Ministerial Policy on the Provision of Adult Basic Education Programs including English Language Training in the Public Education System of British Columbia* states that it is the responsibility of the ministry to provide, to adult citizens and landed immigrants residing in the province, reasonable access to high quality ABE programs. It also notes that responsibility for the development, administration and delivery of ABE programs rests with the colleges, the institutes and the public schools. By 1986, the responsibility for education of all adults except those in secondary schools, the General Education Development (GED) challenge exam, and some adult English Language Training programs, is transferred to the newly created Ministry of Advanced Education (AVED) from MEd. In 1988, the Minister of Advanced Education sets up a Provincial Literacy Advisory Committee (PLAC) to advise on a literacy strategy.

[1] The names and the official acronyms for the Ministries have varied during this history. For ease of recognition, the current (2002) abbreviations are used for the Ministry of Education (MEd) and the Ministry of Advanced Education (AVED) throughout this description.

As a result of the 1988 *Report of the Royal Commission on Education*, tuition fees were abolished for adult learners who had not graduated and were enrolled in MEd ABE programs. In PSE, Fundamental ABE becomes tuition free in 1991 as a result of the recommendations in the Provincial Literacy Advisory Committee's 1989 Report.

In 1992, *The Rivers Report* identifies difficulties in the delivery of ABE programs by two ministries and that same year, *The Faris Report* offers recommendations for overcoming those difficulties. As a result, in 1994 the government establishes the MEd/AVED Joint Committee on ABE which is to conduct a review and make recommendations on: the two systems' funding and fee structures; a common credential; records management, transferability and certificate granting; articulation of ABE courses; program quality, evaluation, and guidelines for good practice; and in addition, ensure cooperation between the two ministries on issues related to ABE.

ABE became tuition-free in the PSE system beginning July 1, 1998. The British Columbia Adult Graduation Diploma (BCAGD) became the common credential for ABE learners in September 1999. This credential allows adult learners to earn a graduation diploma with a mix of appropriate courses from either or both systems- MEd/AVED. In 2000, amendments are made to the School Act, The College and Institute Act, Institute of Technology Act, and Open Learning Agency Act to accommodate the granting of the British Columbia Adult Graduation Diploma (BCAGD). An ABE Accountability Framework and Program Quality Guidelines were also produced in 1999/2000.

In 2000/01, the ABE transitions project continues as both Ministries encourage the PSE and K-12 systems to undertake regional planning activities to improve the coordination of ABE in their respective regions. Several innovative activities take place.

The history of ABE in British Columbia reflects the efforts by ABE practitioners and the provincial government to develop two integrated systems that provide support and basic learning opportunities for adults. As a result, adults who need to upgrade their academic skills or earn a secondary-level diploma can find an appropriate program in their local university college, college or school district. New developments such as the Provincial e-merge initiative for ABE on-line delivery (2000), and the introduction of block funding in the PSE system (2002) present new challenges for ABE in the province.